

THE

MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—11TH YEAR.

SYDNEY: SATURDAY, APRIL 26, 1924.

No. 17.

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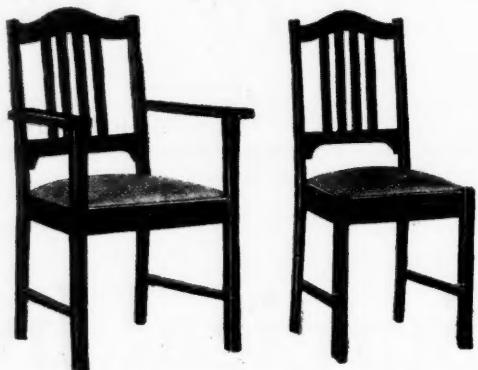


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THE INTESTINAL PARASITES OF MAN IN AUSTRALIA AND ITS DEPENDENCIES AS FOUND BY THE AUSTRALIAN HOOKWORM CAMPAIGN.¹

By W. C. SWEET, M.D.,
Director, Australian Hookworm Campaign.

BETWEEN October 1, 1919, and June 30, 1923, the Australian Hookworm Campaign made surveys of Australia and its dependencies to determine where there was hookworm disease. During these surveys faecal examinations were made of a part of the population of every State and Territory. These faecal examinations were made with the primary purpose of deciding on the presence or absence of hookworm ova, but the ova of other intestinal parasites were always recorded when found. In countries where the hookworm infection rate is high, a thorough search for ova is not necessary and the resulting infection rates for parasites other than hookworms are not likely to be truly representative. In the examinations made by the Australian Hookworm Campaign only 19.4% showed hookworm ova; at least 80.6% of all examinations were thorough searches of the whole preparation. It is probable,

therefore, that the infection rates given in this report for parasites other than hookworms are close to the true rates for the population of Australia and its dependencies.

The results of the examinations made during the original surveys are classified in Table I. by States and Territories and by parasites. There were 202,582 persons examined in Australia and 46,139 in Papua and New Guinea, a total of 248,721 persons. The greater part of these people were residents of Queensland, but enough were residents of other States and Territories so that all results were significant.

Of the 248,721 persons examined 48,256, or 19.4%, were found to be infected with hookworms. The distribution and relations of these hookworm infections have been discussed in other articles^(1, 2, 3, 4, 5) and will not be considered here.

Infections with *Trichuris trichiura*, the whip worm, were found in 9,924 people, a rate of 4.0%. The infection rate in the southern third of Australia was very low, under 1% in South Australia, Victoria and Tasmania. The rate increased with the approach to tropical Australia and was highest in Papua and New Guinea. The highest State rate found was in New South Wales, where most of the people examined were either children of the Northern Rivers district or coal miners of the various

¹ The work reported here was supported jointly by the Commonwealth of Australia, the States and Territories of Australia, and the International Health Board of the Rockefeller Foundation.

TABLE I.
INTESTINAL PARASITES OF MAN IN AUSTRALIA AND ITS
DEPENDENCIES AS FOUND BY THE AUSTRALIAN HOOKWORM
CAMPAIGN IN ITS ORIGINAL SURVEY.

| Persons examined . . . | Queensland | | Northern Territory | | Western Australia | | New South Wales | | Victoria | | Tasmania | | Total for Australia | | Papua | | New Guinea | | Grand Total | | | |
|-------------------------------|----------------|------|--------------------|-------|---------------------|--------|----------------------|-------|----------------------|-------|-------------------|-------|---------------------|---------|---------------------------|--------|-------------------------------|--------|-----------------|---------|--------------|------|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| | Infected with: | | Hookworm | | Trichuris trichiura | | Oxyuris vermicularis | | Ascaris lumbricoides | | Oxyuris incognita | | Hymenolepis nana | | Strongyloides stercoralis | | Trichuris saginata and solium | | Other parasites | | Unidentified | |
| 167,290 | — | 886 | — | 2,846 | — | 23,573 | — | 3,281 | — | 2,457 | — | 2,209 | — | 202,582 | — | 17,905 | — | 28,234 | — | 248,721 | — | |
| Infected with: | | | | | | | | | | | | | | | | | | | | | | |
| Hookworm | 15,472 | 9.2 | 148 | 16.7 | 308 | 10.8 | 774 | 3.3 | — | — | — | — | 2 | 0.1 | 16,704 | 8.2 | 10,601 | 5.9 | 20,951 | 14.2 | 48,256 | 19.4 |
| Trichuris trichiura | 1,733 | 1.0 | 147 | 1.9 | 66 | 2.3 | 729 | 3.1 | 46 | 1.4 | 21 | 0.8 | 21 | 0.9 | 2,247 | 1.3 | 1,795 | 1.7 | 3,362 | 3.2 | 3,426 | 3.4 |
| Oxyuris vermicularis | 2,038 | 1.2 | 22 | 2.5 | 135 | 4.7 | 652 | 2.8 | 46 | 1.4 | 3 | 0.1 | 3 | 0.4 | 2,323 | 1.2 | 1,793 | 1.2 | 3,192 | 3.0 | 6,791 | 7.3 |
| Ascaris lumbricoides | 179 | 0.1 | — | — | 1,79 | 0.3 | 181 | 0.8 | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Oxyuris incognita | 804 | 0.5 | 2 | 0.2 | 2 | 0.7 | 29 | 1.2 | 45 | 0.2 | — | — | — | — | — | — | — | — | — | — | — | — |
| Hymenolepis nana | 402 | 0.2 | — | — | 4 | 1.4 | 45 | 0.2 | 23 | 0.5 | 9 | 0.4 | 4 | 0.5 | 4,635 | 0.2 | 26 | 0.2 | 1,18 | 0.4 | 6,166 | 0.2 |
| Strongyloides stercoralis | 373 | 0.2 | — | — | 5 | 0.2 | 10 | 0.4 | 18 | 0.5 | — | — | — | — | — | — | — | — | — | — | — | — |
| Trichuris saginata and solium | 28 | 0.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Other parasites | 8 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unidentified | 35 | 0.02 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| All intestinal parasites | 21,162 | 12.6 | 190 | 21.4 | 563 | 19.8 | 2,461 | 10.4 | 74 | 2.2 | 39 | 1.6 | 32 | 1.4 | 24,521 | 12.1 | 15,264 | 8.7 | 3,29,753 | 85.2 | 69,538 | 27.9 |

coal fields. The highest local infection rates in Australia were found in aboriginal camps of the tropics and sub-tropics and in Queensland hospitals for the insane. In these places the rate approached that found in Papua and New Guinea. Infections with Trichuris would seem to depend, as do infections with hookworms, on the moisture and temperature of the area and on the sanitary habits of the population. Trichuris infections, however, were found much farther into the dry interior, so the spread of this infection does not respond to low rainfall as quickly as is the case with hookworm infections. The percentage rate of Trichuris infections is a fairly sure index of the sanitary standing of any tropical or sub-tropical community in Australia, except in the very dry interior where parasitic infections of any kind are very rare.

The infection rate of *Oxyuris vermicularis*, the pin worm, was about the same throughout Australia and its dependencies. The microscopic examination of faeces is not an adequate method for diagnosing infections with this parasite, since its ova are not evenly distributed throughout the stool. In a Queensland institution microscopic methods established an infection rate for this worm of 2.7%, while worm counts showed that the true rate was about 71%. Apparently, however, climatic and sanitary conditions do not play any very important part in the spread of this infection and the aborigines of Northern Queensland probably have much the same infection rate as the citizens of Melbourne. Rates were usually somewhat higher when the people examined were mainly children.

There were only 376 persons out of 202,582 examined in Australia who were infected with *Ascaris lumbricoides*, the round worm. This was a rate of 0.2% as against 12.3% and 11.3% in Papua and New Guinea respectively. The highest rate, 2.0%, found in Australia was in the Cape York Peninsula where most of the persons examined were aborigines and where conditions were more like they are in the islands. There would seem to be a tendency to a higher general rate of infection in whites in the southern half of the continent than in the northern. In Papua the infection rate was very irregular, reaching a maximum of 54% in one area and in some places almost disappearing. A series of thirty-two *post mortem* examinations at Rabaul gave an Ascaris rate of 18.8%. These rates are not as high as those in other countries with a similar native population.

The infection rates for *Oxyuris incognita* are not reliable as the early methods of faecal diagnosis were not suited to showing the very light ova of this undiscovered parasite. The absence of infection in the southern part of Australia and in Papua was probably due to this fact. Its true rate in Queensland is probably between 1.0% and 2.0%, the most usual rate in that State when adequate methods of diagnosis are used. Dr. Burnell, at that time Assistant Director of the Hookworm Campaign, found that the maximum number of infections were found during the summer months.⁽⁶⁾ Efforts to establish infections in rabbits and to

hatch larvae from the ova have been uniformly unsuccessful. Recently larvae have been found in two instances in old faecal specimens containing *Oxyuris incognita* ova only and further investigations will be attempted.

There were 616 persons found infected with the small tapeworm, *Hymenolepis nana*. The highest rate for this parasite was in New Guinea, 0.4%, and the lowest, no infections, in Tasmania. This would seem to be an infection favoured by tropical climates. The rates on the continent were highest amongst the aborigines, where the infection was found in groups of children who were more or less intimately associated.

Strongyloides stercoralis occurs in the faeces in the larval stage so the Willis salt-flotation method of faecal examination is not very efficient in diagnosing infections with this parasite. Infections were found in every State and Territory with the exception of Tasmania and were apparently not more common in tropical Australia. The infection rate was sometimes found to be very high in small communities with a low sanitary standard.

Infections with *Taenia saginata* and *Taenia solium* were very rare in Australia and were absent in Papua and New Guinea. The rarity of *Taenia saginata* infections in a country where so much beef is raised and consumed is remarkable. Of the forty-two infections with these two parasites twenty-five were not classified in reports, six were with *Taenia solium* and eleven with *Taenia saginata*. The rates were higher in New South Wales and South Australia than in Queensland, but no infections were found in the other States.

There are twelve infections listed in Table I. under "other parasites." These were: Five infections with *Hymenolepis diminuta*, two with *Dibothrioccephalus latus*, two with *Clonorchis sinensis* and three with *Haemonchus contortus*. Four of the infections with *Hymenolepis diminuta* were in residents of Queensland and one in a resident of northern New South Wales.⁽⁷⁾ The two infections with *Dibothrioccephalus latus* were found in persons resident in Queensland who had come from Finland. Two Chinese residents of Queensland were found infected with *Clonorchis sinensis*. The three infections with *Haemonchus contortus* were found in aborigines of the Moore River Settlement in Western Australia; the faeces examined were probably contaminated with soil previously polluted by sheep.

There were fifty-five examinations which yielded unknown ova. These were probably unusual forms of *Ascaris* eggs in many instances, while others were possibly not ova at all. No examinations for intestinal protozoa were made except those already reported by Dr. Willis.⁽⁸⁾

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THE INTELLIGENCE OF THE CRIMINAL INSANE.

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THIS article represents an analysis of the native intelligence of all "accessible" criminals and ex-criminals resident in the Mental Hospital at Parramatta on August 1, 1923, together with an analysis of the intelligence of those committing various classes of crimes. By native intelligence is meant the intelligence which is innate in a person and ceases to increase after sixteen years. In a former article to THE MEDICAL JOURNAL OF AUSTRALIA, published on October 27, 1923, in which I analyzed the native intelligence of ten criminals in this hospital, I used the Binet-Simon method of the investigation of native intelligence. This method proved very satisfactory not only for proving mental deficiency, but also in affording a valuable means of classifying the mentally deficient into varying grades of imbecility and moronism. As I extended my investigations I found that certain of the patients were of normal intelligence—one in fact of a very superior type—and for such patients the methods of Binet are not wholly satisfactory. Binet died before his method was perfected and he did not understand that native intelligence ceases to increase after sixteen years. Thereupon I adopted in all persons the Standford revision and extension of the Binet-Simon intelligence scale, as described by Terman in his "Measurement of Intelligence." This modified method with its convenient hand-book, its uniform method of questioning, is much more convenient than the original Binet-Simon method, for whilst it proves and classifies the mentally deficient into varying degrees of imbecility and moronism as the Binet-Simon method does, it has the additional advantage of proving normal and superior degrees of normal intelligence.

It may be explained that these intelligence tests consist of certain uniform questions designed for each year of life up to the age of sixteen years. A child of three, for example, should be able to point to his nose, tell his sex *et cetera*. For persons of superior intelligence six questions have been formulated. A superior adult should have an extensive

vocabulary, should be able to repeat eight figures, should be able to say seven figures backwards and so on. The set of questions are gone through, the patient's replies are noted—correct responses mean so many months of mental age—and on the completion of the questions by a simple process of addition the patient's mental age determined. Having ascertained the mental age the intelligence quotient is

$$\text{Mental age } 100 \\ \text{attained by the formula: } \frac{16}{16} \times \frac{100}{1} = X.$$

For example if a patient's mental age is eight his intelligence quotient or I.Q. would be

$$\frac{8}{16} \times \frac{100}{1} = 50.$$

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On August 1, 1923, there were in this hospital twenty-nine criminals and one hundred and five ex-criminals. By ex-criminals are meant persons who had passed through the criminal wards and had later been transferred to the free division. Of these only forty-five were suitable for the intelligence tests; fifty-seven of them showed signs of dementia, which *per se* implies feeble-mindedness.⁽¹⁾ Ten were "inaccessible" because of incoherency, stupor or introspectiveness.⁽¹⁾ Four were foreigners with an imperfect knowledge of English; eight were adjudged too violent to be examined and five were unsuitable because of physical disability; two were extremely deaf; one was suffering from general paralysis of the insane in an advanced stage; one was in the terminal stages of tuberculosis and one suffered from motor aphasia. This left a series of fifty persons of whom five refused to submit to the examination, leaving the final series at forty-five.

The results obtained can best be appreciated by a classification on the intelligence quotient as suggested by Terman:

Persons with an intelligence quotient above 110 (superior adult mental age over $17\frac{1}{2}$) numbered one or 2%.

Persons with an intelligence quotient between 90 and 110 (average intelligence, mental age between $14\frac{5}{12}$ and $17\frac{1}{2}$) numbered seven or 16%.

Persons with an intelligence quotient between 80 and 90 (dull average, mental age between $12\frac{10}{12}$ and $14\frac{5}{12}$) numbered six or 13%.

Persons with an intelligent quotient between 70 and 80 (borderland deficiency, mental age between $11\frac{2}{12}$ and $12\frac{10}{12}$) numbered six or 13%.

Persons with an intelligence quotient between 50 and 70 (moronism, mental age between 8 and $11\frac{2}{12}$) numbered twelve or 27%.

Persons with an intelligence quotient between 25 and 50 (imbecility, mental age between 4 and 8) numbered thirteen or 29%.

In other words no fewer than twenty-five or 56% of the series are mentally deficient. These figures

¹ Since tabulating these figures two of these patients developed acute illness—one a fatal myelitis, the other severe influenza. Both persons who had been inaccessible for years, became during the height of their illness rational and quite sensible only to relapse. The influenza patient relapsed during convalescence into his former state of "inaccessibility." This improvement of mental condition during acute illness is quite common. It has received no satisfactory explanation and is well worthy of further investigation.

are on a par with the results obtained in America where the percentage of mental defectives in certain series of criminals has been 50% and over.⁽²⁾ This percentage is much higher than the normal percentage of mental defectives in the population—the proportion being somewhere in the region of 2%.⁽²⁾

Analysis According to Classes of Crime.

The examination of the intelligence of those committing the various classes of crime affords an interesting study of criminology, although in the classification adopted much overlapping is unavoidable. For example, one patient who comes under the heading "murder" had six previous convictions of various kinds against him and must also come under the heading "repeated offences."

Murder and Assaults with Intent.

Fourteen persons come under the heading "murder and assaults with intent" and of them no fewer than six show an intelligence quotient over 106, one being a superior adult. It is a peculiar fact that the most highly intelligent persons of the series are murderers and all show highly developed delusionosis. Three of them are paranoics and this is a point which emphasizes once again the highly dangerous character of the paranoic, for the paranoic has systematized incurable delusions of persecution which exist without apparent intellectual impairment.⁽³⁾ Of the others two belong to the low average class, three are morons and three are imbeciles. In other words 43% of this class are mentally deficient.

Indecent Assault.

In contrast to the intellect of the murderer is the mental deficiency shown by those committing indecent assault. Of the eleven persons arraigned for this crime no fewer than nine or 81% are definitely imbecilic with an intelligence quotient of 48 and below. One has an intelligence quotient of 31, equal to that of a normal child of four years and eleven months, and is the lowest in the whole series. In six out of nine the crime was committed before the age of twenty-one, in one case at the age of sixteen. It is interesting to note that one of these patients is a married man with five children, who started the struggle for existence overburdened with a handicap of heredity, so powerful a factor in the causation of mental disorders. The remaining two persons are both normal in intelligence; one has an intelligence quotient of 90, the other 106. Both patients were admitted to hospital in a confused state and their personal history shows that the want of self-control, so essential in the committal of this crime, was induced during the amnesia of acute alcoholic poisoning.

Fraud and Forgery.

Paradoxically enough in the class of fraud and forgery, a crime in which one would expect a high degree of intelligence, only two out of the four approached the normal degree of intelligence. One of these patients had fifteen previous convictions against him for fraud and in spite of coming from a good family he prefers to live on his wits—surely

a strange problem in psychology! The other two persons are of the high moron type with an intelligence quotient of between sixty and seventy. One of these patients has five previous convictions against him for fraud and yet his mental age is only nine years and six months.

Stealing.

Under the heading of "stealing" I have classified three imbeciles whose crime was their first and last. The amount they stole was small, they can see no wrong in their action and in fact are quite proud of their feat. The interesting fact is that whilst outside they are potential dangers to society, in hospital they are all useful men and are quite happy and contented in their present environment.

Miscellaneous Crimes.

Five persons come under the heading of "miscellaneous crimes" such as arson, maliciously damaging property, setting fire to a public school *et cetera*. Four of them approach the normal standard of intelligence. In these four the crime seems to be a direct result of delusions and hallucinations from which they suffer. The person who set fire to the public school, was told to do so by voices and he obeyed. These persons emphasize the generally accepted statement that many persons suffer from delusions, but it is only when the delusions are a danger to the public good that the possessor of them should be removed to proper care and control.⁽¹⁾ The fifth patient is a high grade moron who attempted suicide. This person has a most remarkable memory especially for figures and can repeat conversations heard years before.

Repeated Offences.

The Habitual Criminal.—There are three persons classified as habitual criminals for repeated offences. All are low grade morons with numerous convictions against them. They all started their career of crime before the age of twenty-six years and one of them has sentences aggregating over twenty years against him. Not one of them is ashamed of his crimes; one in fact gives a most interesting account of the rights and duties of the habitual criminal. It is a strange fact that their mental deficiency was never recognized until they developed delusions of persecution in gaol and they were then transferred to this hospital where all are contented and happy.

Numerous Convictions.—I have record of ten persons who have numerous convictions against them without being declared habitual. Six or 60% are definitely feeble-minded; two are imbeciles and four are morons. These six persons have always been a burden on society; they spend the greater part of their lives in gaol and offend social laws time and time again in spite of punishment. In four cases the path of crime was entered upon before the age of twenty-one. The other four persons belong to the moral imbecile class and approach the normal standard of intelligence. Of the forty-five persons in the series they are the most plausible, ready-witted and cunning and how well do they conform to Stoddart's description of the

moral imbecile: "The egotism of the moral imbecile is unbounded, he is always a conceited braggart, a liar too of the first order."⁽⁴⁾ The treatment of the moral imbecile still remains to be solved. He is not mentally deficient and yet he prefers a life of crime. In three out of the four the first conviction was before the age of twenty; conviction after conviction followed and punishment was of no avail. The problem of the moral imbecile is a most baffling one and so far has defied all efforts at solution by psychologists, criminologists and alienists.

General Deductions.

From the study of these forty-five patients certain broad deductions can be drawn: (i.) That persons of superior intelligence are more prone to murder and in the majority of cases the crime that led to their detention in this hospital is their first; (ii.) that the low grade imbecile is more prone to indecent assault and robbery and as a rule does not belong to the habitual criminal class, evidently because his mental deficiency is so obvious that it is recognized at the first crime and then he is put under proper care and control; (iii.) that those who have numerous convictions against them and are mentally deficient, are either the high grade imbeciles or morons. In such cases the mental deficiency is not apparent on superficial examination and can only be demonstrated by the methods of Binet-Simon or its modifications or by the taking of a careful personal history.

The conduct of the mentally deficient patients in this series throws an interesting light on the study of mental deficiency. Whilst great differences in individual cases are very apparent, yet no fewer than nineteen out of the twenty-five conform to a uniform pattern and are useful, hard working and contented. This is the experience at most mental hospitals, where the bulk of the best workers are mentally deficient. As Stoddart points out: "The mentally deficient can never attain the mental capacity of normal individuals, but by suitable training many of them are capable of considerable improvement, sufficient in some cases to earn their own living."⁽⁴⁾ Two of the nineteen in fact were useful members of the community outside and one was a married man with five children. In hospital the nineteen have been allotted a certain task and they will carry out that task irrespective of time, circumstance and in a manner totally devoid of intelligence. It is the duty of one of these patients to bring in the cows twice a day, feed them and then turn them out. This routine is carried out cheerfully and happily by the person and he resents any interference with this duty by others. The slightest deviation from the normal course of events leaves the patient confused and bewildered and he has then to be shown what to do.

Of the six other patients two are highly dangerous and are only prevented from doing harm to themselves and others by the ever watchful care and attention of experienced attendants. The other four patients are good workers, bad tempered and much tact is required to handle them.

Conclusion.

If the routine examination of the intelligence of criminals were carried out, the mentally deficient could be found early. They could then be put under proper care and control and by careful method in the majority of cases useful tasks could be taught them and work useful to the community could be performed. This segregation of patients is in the great majority of cases no hardship on them. As long as they are fed and comfortable, their environment matters little to them; they are devoid of ambition, their lives are aimless and futile.

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SYMPTOMLESS OTITIS MEDIA OF INFANCY AND CHILDHOOD: SOME POST-MORTEM OBSERVATIONS.

By ROBERT SOUTHBY, M.D., B.S. (Melbourne),
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Introduction.

It appears to be a generally accepted belief among medical practitioners that the condition of *otitis media* frequently gives rise to a purulent meningitis, particularly in infants and young children, and again that infection occurs in the reverse direction, otitis resulting as an extension of the inflammation from a purulent meningitis. This is probably a result of the oft-repeated statement, copied from one text-book to another, that the patency of the petro-squamous fissure in infancy with resultant free communication between the lymphatics of the middle ear and those of the middle fossa of the cranium makes the cerebral complications of *otitis media* more common in infants.

During the course of a number of autopsies performed on infants and children I have been impressed from time to time with the frequency of occurrence of *otitis media* which had apparently given rise to neither symptoms nor signs *antemortem*, and the rarity of associated intra-cranial complications.

In an endeavour to confirm or disprove the aforementioned current opinion and to elucidate some further information on this puzzling condition a systematic inspection of the middle ear cavities was made at every available opportunity when the calvarium and brain had been removed during the autopsy.

Method of Examination.

Examination was performed by excision of a wedge-shaped mass of the petrous portion of the temporal bones with the aid of strong bone forceps. By this means a free exposure of the *carum tympani*, auditory ossicles and *membrana tympani* is obtained. Access is gained to the mastoid antrum and cells, when present, by a further removal of bone.

The particular points observed in this investigation were: (i.) Condition of the tympanic cavity with regard to presence or absence of gross purulent infection, *id est* whether the ears were "infected" or "clean." (Throughout this article these terms will be used in the description of the state of the middle ear cavities.) (ii.) State of the tympanic membrane, *id est* whether perforated or intact; (iii.) cause of death of the patient. In every case in which there was obvious infection (by this is meant the presence of muco-purulent or frankly purulent material) a smear was made, stained by Gram's method and submitted to microscopical examination.

An attempt was made to correlate these findings in order to discover whether the *otitis media* was in any way directly responsible for the death of the patient or if it was simply an independent and unimportant lesion occurring in a child who had succumbed to some other morbid process.

Results of Investigation.

In this series comprising a total of fifty consecutive autopsies in which the middle ear cavities were examined, the ages of the children varied from three weeks to thirteen years and of the total number thirty-two were under two years of age and eighteen were older children.

The findings may be summarized under several headings:

Condition of the Tympanic Cavity.

Gross purulent infection of one or both ears was found in thirty-three instances while the remaining seventeen presented perfectly clean ears.

A rather remarkable variation in the sex incidence was noticed, *exempli gratia* of the thirty-three with infected ears, twenty-three were males and ten females, whereas of the seventeen with clean ears only seven were males and ten females. It is a matter for conjecture whether this is of any significance or merely a striking coincidence; it may possibly be associated with some difference in the anatomical arrangement of the middle ear in the two sexes.

In the thirty-three children in whom otitis was present both ears were involved in no less than twenty-six while the infection was limited to one side in the remaining seven; of these latter the right ear was involved on six occasions and the left in the seventh instance; it is of interest to note that in this particular child the middle ear cavity was completely filled with a plug of mucoid granulation tissue and a small quantity of thin purulent material.

State of the Tympanic Membrane.

Of the thirty-three with infected ears the tympani were both intact in no less than twenty-nine; of the remainder one tympanum was perforated in three instances, each time on the right side and both membranes were perforated in one patient only.

In every one of the seventeen with clean ears both tympani were intact.

Cause of Death of the Patient.

The cause of death of the patient can be seen most clearly by reference to the two accompanying tables.

TABLE I.
CAUSE OF DEATH IN CHILDREN WITH INFECTED EARS.

| No. | Sex. | Age. | Pathological Condition. |
|-----|------|-----------|---|
| 1 | M | 17 months | Acute meningo-coccal meningitis |
| 2 | M | 3 weeks | Pertussis, broncho-pneumonia |
| 3 | M | 4 months | Pneumococcal meningitis |
| 4 | F | 18 months | Ulcerative stomatitis, broncho-pneumonia |
| 5 | F | 10 months | Pneumococcal meningitis |
| 6 | M | 6 weeks | Lobar pneumonia, empyema |
| 7 | M | 1 year | Morbilli, broncho-pneumonia |
| 8 | F | 7 years | Infective pancarditis, septicaemia |
| 9 | M | 6 months | Morbilli, broncho-pneumonia |
| 10 | M | 4 years | Lobar pneumonia, empyema |
| 11 | M | 1 year | Lobar pneumonia, empyema |
| 12 | M | 16 months | Pneumococcal meningitis |
| 13 | M | 10 months | Broncho-pneumonia |
| 14 | M | 2 years | Disseminated tuberculosis |
| 15 | M | 18 months | Morbilli, pneumonia, double empyema |
| 16 | F | 22 months | Disseminated tuberculosis |
| 17 | M | 3 weeks | Congenital heart disease, broncho-pneumonia |
| 18 | M | 1 year | Pneumococcal meningitis and pericarditis |
| 19 | M | 3 years | Disseminated tuberculosis |
| 20 | M | 3 years | Congenital syphilis, broncho-pneumonia |
| 21 | F | 10 months | Pneumococcal meningitis |
| 22 | M | 9 years | Malignant endocarditis, septicaemia |
| 23 | M | 27 months | Broncho-pneumonia |
| 24 | M | 16 months | Broncho-pneumonia, pneumococcal meningitis |
| 25 | F | 9 years | Broncho-pneumonia, pneumococcal meningitis |
| 26 | F | 22 months | Lobar pneumonia, nasal diphtheria |
| 27 | M | 6 years | Morbilli, tuberculous broncho-pneumonia |
| 28 | F | 14 months | Pneumonia and pulmonary abscess, <i>otitis media</i> and septic meningitis, haemorrhagic glioma |
| 29 | M | 4 years | Congenital syphilis, broncho-pneumonia, pneumococcal meningitis |
| 30 | M | 15 months | Disseminated tuberculosis |
| 31 | M | 10 months | Disseminated tuberculosis |
| 32 | M | 4 years | Purpura, lobar pneumonia |
| 33 | F | 18 months | Pneumococcal meningitis |

From these tables it will be seen that purulent meningitis occurred in eleven (or 33%) of thirty-three children in whom *otitis media* was present. In only one was there evidence of a direct extension from the ear to the meninges.

Among seventeen children whose middle ear chambers were demonstrated at autopsy to be clean, there were six instances of purulent meningitis, an incidence of 35% which closely approximates that observed in those with "infected" ears.

Microscopical Examination of Material from the Infected Ears.

In the twenty-nine instances in which both tympani were intact, the smears showed without exception very numerous polymorpho-nuclear cells and with monotonous regularity "Gram positive" cap-

sulated cocci, occurring in pairs and short chains. These were regarded from their morphological characters as pneumococci.

On six occasions only were other organisms in addition to the pneumococci observed. These comprised small intra-cellular cocci, not retaining the stain in the Gram method, which were seen in three smears, large "Gram positive" bacilli seen on two occasions and large bacilli, not retaining the stain in the Gram method, seen in one instance only.

On the other hand the smears from the four patients in whom the tympanum was perforated on one or both sides, all showed a heterogeneous mixture of organisms including both cocci and bacilli some of which retained the stain while others became decolorized.

Only one attempt was made to cultivate the organisms from the purulent material in the tympanic cavity, namely in Number 23, a child, who died from broncho-pneumonia. On this occasion Dr. Reginald Webster made cultures from the pus in the middle ear and from a scraping of the bronchial mucous membrane, the former a direct broth culture and the latter by preliminary passage through a white mouse.

The material from both sources yielded a pure culture of pneumococci which were further classified by Dr. Webster according to the specific serological type.

The striking result of this investigation was that both proved to be pneumococcus Type III.

Absence of Signs Ante-mortem.

Apart from the four children in whom the tympanum was perforated with subsequent discharge of pus from the ear, the remaining twenty-nine gave rise to no suspicion that the middle ear cavities contained frankly purulent material.

TABLE II.
CAUSE OF DEATH IN CHILDREN WITH CLEAN EARS.

| No. | Sex. | Age. | Pathological Condition. |
|-----|------|-----------|--|
| 1 | F | 5 months | Streptococcal meningitis |
| 2 | F | 13 years | Lobar pneumonia |
| 3 | F | 5 weeks | Colitis |
| 4 | F | 7 months | Colitis |
| 5 | M | 8 months | "Idiopathic convulsions" |
| 6 | F | 5 years | <i>Diabetes mellitus</i> |
| 7 | M | 22 months | "Idiopathic convulsions" |
| 8 | F | 2 years | Broncho-pneumonia, pneumococcal meningitis |
| 9 | M | 9 years | Rheumatic pancarditis |
| 10 | F | 26 months | Empyema, pneumococcal pericarditis |
| 11 | M | 8 months | Pneumococcal meningitis |
| 12 | F | 11 months | Posterior basic meningitis |
| 13 | F | 10 years | Meningococcal meningitis |
| 14 | F | 4 years | Cerebral hemiatrophy, convulsions |
| 15 | M | 22 months | Cretinism, broncho-pneumonia |
| 16 | M | 3 years | Broncho-pneumonia, influenza |
| 17 | M | 3 months | Hydrocephalus |

In every instance a routine examination of the ears was carried out when the child was admitted to hospital and in a great many cases subsequent examinations were made during the child's stay in the ward, but in none was there any bulging of the tympanum or reddening of the membrane from engorgement of the vessels, nor did any of the patients complain of earache during the course of their illness.

Summary.

The chief points submitted as a result of this investigation are:

(i.) Frequency of *otitis media* in infants and young children without accompanying signs or symptoms. (Adults with ears in a similar condition would almost certainly be seriously ill and show obvious signs of the condition.)

(ii.) Occurrence of *otitis media* with no concomitant purulent meningitis and on the other hand, the frequency of perfectly clean ears in the presence of purulent meningitis.

(iii.) Rarity of intra-cranial complications.

Acknowledgment.

In conclusion I wish to thank Dr. Reginald Webster for his kindly assistance and helpful criticism throughout the course of this work.

THE NURSING PROBLEM.

By SIR JAMES BARRETT, M.D., Ch.M. (Melbourne),
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THROUGHOUT the world of medicine the problem of the training of nurses is receiving increasing attention for a variety of reasons. Medical practitioners who are only interested in a general way, utter diverse opinions. A number of them think that the training of the nurses is too elaborate and too theoretical and intimate their opinion that what is wanted for the most part is a trained sick room attendant. Others, particularly operating surgeons, well aware of the great value of a highly trained and efficient operating-room sister, not unnaturally express the opinion that all nurses should be just as efficient. In the meantime, however, it has become apparent that the supply of thoroughly trained nurses is running short. There are still in Australia sufficient nurses to conduct general nursing work, but there are certainly not enough nurses possessing a general and a midwifery certificate to attend to maternity work. This shortage has become obvious to all the bush nursing organizations who cannot employ a nurse possessing the general certificate only. In Victoria, for example, the two large midwifery training schools turn out less than a hundred trainees *per annum* and of these only seventy-five are doubly certificated nurses. Of these seventy-five the great majority never intend to practise midwifery. They take the course of training because it is necessary to hold the midwifery certificate in order to obtain a position as a baby

health nurse or as a matron. The Victorian Bush Nursing Association will be rescued from its shortage in due course by the far-sighted and generous action of the trustees of the Edward Wilson (*The Argus*) Estate who have agreed to pay nurses who undertake a course of midwifery training, provided they undertake to serve the Bush Nursing Association for a term. The hospitals supported by the trust have agreed to give such trainees preferential treatment.

The difficulties, however, have raised the whole nursing problem and it may be well to ask what is being done in other countries. All these and many other difficulties have been felt acutely in the United States and in December, 1918, the Rockefeller Foundation called a conference of people interested in the development of public health nursing in the United States. The committee appointed to study the question raised and to prepare a definite proposal for a course of training for public health nurses set to work. When the conference met again in 1920 the scope of the inquiry had widened and centred not only on the training of nurses for public health work but for hospitals and also for private duty. The entire trend of nursing education was considered. The report of the committee was presented in 1923 and has just been published by the Rockefeller Foundation. It is comparatively brief, but the survey on which it is based covers nearly six hundred pages of print and represents a monumental piece of industry. Those who wish to refer to the mass of detail presented must read the original, but the general conclusions can be presented in a comparatively brief form.

Up to the time of Florence Nightingale the attention to the sick, such as it was, had been in the main associated with religious orders; nursing in the form we now know it, did not exist. It was Florence Nightingale who effected a very great reform by realizing the fundamental necessity of a general secular training for nurses and by establishing a training school. The success of the nurses trained by her method was so striking that the various hospitals established training schools of their own and unfortunately mixed up the training of the nurses with the administration and conduct of the hospital. So it came about that as in medicine, law and many other professions the training of the nurses became an apprenticeship to employers who used the trainee in the conduct of their business. The principle laid down by Florence Nightingale disappeared in this movement. The following passage from the report explains the genesis of the movement:

"The history of nursing education, so far as it has progressed, is indeed the history of most vocational education. For professional, commercial, industrial training in almost all lines had its roots in apprenticeship of one kind or another, and until comparatively recent years apprenticeship was the traditional and accepted method of instruction. But while standard professional education such as law and medicine, architecture and engineering, has long outgrown the apprenticeship stage, and even such callings as journalism, business and social work are rapidly moving towards an ordered educational scheme, the training of nurses remains one of the few survivals of this earlier and largely outworn type of education. The nurse in the

vast majority of cases still receives her professional training not in an educational institution independently endowed and organized as Florence Nightingale conceived it, but in a training school which is a part of a hospital and responsible for furnishing its nursing service. Such a school shares inevitably the essential weakness of the apprentice system; its first liability is service, production, not education. Only within a comparatively short time has the teaching of nursing been in any degree differentiated from apprenticeship and been placed in part on a sound educational basis, providing that balance of practical experience and didactic teaching which is the *desideratum* in all vocational preparation.

In urging, as this report does, the establishment and endowment of genuine education for nurses, it should be understood as for one instant under-estimating the primal, basic value of the practical training in a field which offers a peculiarly rich, an almost ideal, pedagogical opportunity. For here the 'motor consequences,' as William James termed them, of instruction are reinforced by a motive on the part of the students very different from that animating most vocational training—the motive, to relieve suffering and save life.

In medicine, law, engineering and other professional discipline the period of apprenticeship training was followed by a too great divorce of theoretical instruction and its practical applications, a too great reliance upon formal class-room instruction alone. It has, therefore, proved necessary in these professions to re-establish practice fields, again requiring, but now as a more carefully integrated share of the training, practical experience on the part of the student.

The fear is sometimes expressed that the obviously approaching breakdown of apprenticeship in nurse training will lead to a similar error, with the loss of practical efficiency in nursing. But in the course of this report it will become abundantly clear that no such danger is evident, that on the contrary it is the forced compliance with hospital needs which has been and continues to be the genuine obstacle to educational advance.

The Dual Function of the Training School.

"On entering upon a study of nurse training today we are confronted by this dual character of the training school. It is indeed, as we shall see, the crux of the problem, the heart of our difficulty. For the school of nursing has sought to perform two functions: to educate nurses and to supply the nursing service for the hospital. But in these two functions there lies an ever-present possibility of conflict. The needs of training and of hospital services may not coincide and when the two are in conflict, the needs of the sick must predominate; the needs of education must yield. Whether or not, for instance, a student nurse has completed the services required for her training, whether or not she has had any experience with children or has had sufficient instruction in medical disease, if surgical patients are in need of care, to the surgical ward she is sent, though she may already have exceeded the time set for this service.

Or, again, whether or not she may have learned in a week to mend rubber gloves or learned in a day to wash lettuce for private patients, if gloves are to be mended or lettuce to be washed, to these services she is assigned for additional weeks.

In a later chapter we shall see how by providing supplementary services these needs of the hospital may be met without depriving students of a balanced training, how by a different organization of the school the present training of students may be both shortened and enriched. We shall also show in detail the failures in the first principles or teaching found in even the best schools. But at this point of our discussion we must first illustrate concretely how the training of nurses is sacrificed and prolonged in deference to the needs of the hospital. Today this cardinal point is unheeded, unrecognized. Were it once clearly established and its wide implications made plain, the fundamental error in the present relationship of hospitals and training schools would be abundantly evident. In such a showing lies the only hope of improvement. For the bar to progress at present lies precisely

in ignorance of the facts. No action will follow until these facts sharply challenge the interest of those in authority; that is, first the responsible hospital trustees and behind them the general public on whose financial support either directly through gifts or indirectly through taxation the hospitals are dependent."

In the United States the public health nurses who now number 11,000, are assuming an increasing importance in the eyes of the medical profession and striking instances are given of the reduction of puerperal mortality owing to their activities. It has been reduced from the Australian rate of one in two hundred to in some cases one-fifth of that mortality. The gist of the matter is that in the opinion of those who conduct public health services, the public health nurses must follow up the medical direction by personal contact with those whom it is sought to influence in their own homes. In the course of the inquiry, however, stress is laid on the need for shortening the period of training required by the ordinary nurses, by eliminating from their curriculum ordinary hospital work which should be discharged by a permanent staff. The committee was of opinion that the period of training might be reduced by this means to twenty-eight months. Elaborate analyses of the times spent are given in the report. Stress is laid on the need for giving the ordinary nurse as we know her a better grounding in the principles of science and of rendering her still more efficient. The committee, however, realizes that a highly trained nurse of this character while necessary in time of operation or in a case of acute disease, such as pneumonia, is not necessary in the treatment of a chronic condition or a convalescent patient and that a nursing attendant with a lesser training (alluded to in the opening of this article) might well do such work.

So far these recommendations are not very dissimilar to those made from time to time by a minority, though a large minority, of the medical profession in Australia. The next recommendation is, however, new to Australia. The survey indicates the desirability of establishing a trained class of nurses superior in training and wider in outlook than either of the two preceding types and with this end in view university schools of nursing have been established in a number of universities. The University of Minnesota founded the first school in 1910. It has been followed by Cincinnati, Colorado, Indiana, Michigan, Missouri, the Northwestern University and others. The department of nursing has a dean of its own. The curriculum leads to a degree in nursing or in science. For such a nurse the training after entry covers five years, *videlicet* two to three university years of eight months each and two to three hospital years of eleven months each. In other words the training has become parallel to medicine, law *et cetera* and the professional standard reached is similar. It may come as a surprise to Australian medical practitioners to meet a nurse who signs after her name the letters B.N. (bachelor of nursing). It is clear that nurses of this type will not in the main be used for ordinary nursing purposes. They will become matrons, dieticians, secretaries of hospitals and administrators in various capacities. It is not diffi-

cult to realize the immense importance of providing a body of trained professional women who will regard nursing as a profession and modify the teaching accordingly.

In addition post-graduate courses are provided at some of these universities. In 1920 there were in the United States twenty schools in public health nursing—the universities included those of Wisconsin, Pennsylvania, Michigan (Ann Arbor) and Berkely, California. Precisely how the movement will work out it is difficult to say, but it is clear that the medical profession in the United States has made a radical departure in its attitude to the problem. I am inclined to remember the sagacious observation of Huxley, that when you start out to solve a new human problem, you can be certain of two results, namely that after the effort has been made you will not be in the position from which you started and you will certainly not reach the exact position you thought to attain.

The value of the report apart from the mass of information it contains is the evidence of a fresh and novel attitude of mind to a problem which is vital to any civilized community. Australia possessing a general mortality of eleven per thousand and an infantile mortality of fifty-three per thousand or thereabouts, should not exhibit a puerperal mortality of one in two hundred. I do not believe that the puerperal mortality will be substantially reduced without an adequate supply of properly trained nurses and they are certainly not being produced at present in the necessary numbers.

CARCINOMA OF THE PANCREAS IN AUSTRALIA.

By GORDON CAMERON, M.B., B.S.,

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ALTHOUGH the literature on carcinoma of the pancreas is fairly extensive, yet no publication on the subject has appeared in an Australian journal. With the object of obtaining some idea of the characteristics of this not infrequent disease, the author has collected fifty-five cases from the records of the Melbourne Hospital for the years 1908 to 1923, to which have been added six cases actually seen by him during a term of residence at the hospital. These latter through the kindness of the various honorary physicians and surgeons on the staff were investigated prior to confirmation of diagnosis. Only cases in which an autopsy was performed or operation was carried out are included in the series.

It is not proposed to review the literature on the subject. Notable contributions have been made by Robson and Moynihan,⁽¹⁾ Robson and Cammidge,⁽²⁾ Herringham,⁽³⁾ Bosanquet and Clegg,⁽⁴⁾ and Bland Sutton⁽⁵⁾ in England, while Opie,⁽⁶⁾ Ewing,⁽⁷⁾ Hertzler,⁽⁸⁾ Deaver,⁽⁹⁾ Speed⁽¹⁰⁾ and many others in America have each added their quota.

Two brief references to the subject have been found in an extended study of the various Australian journals: one reference was to a case reported by J. L. Cooney,⁽¹¹⁾ in 1921, the other to a specimen of a solid tumour of the tail of the pancreas exhibited by Nash,⁽¹²⁾ at the clinical meeting of the New South Wales Branch of the British Medical Association in July, 1914.

As a result of my analysis, the following brief description of the disease is presented:

Carcinoma of the pancreas, as it is found in Australia, is most often found in males, the proportion of male to female cases being two to one. The average age of onset of the disease is 60.4 years.

In about one-third of cases there is a previous history of gastro-intestinal disturbance. A little over 40% of patients give a symptomless past history. In 16% a previous venereal infection can be obtained, while in 26% some degree of alcoholism is common.

The disease most commonly affects the head of the pancreas and is of the scirrrous type of carcinoma. The liver, portal lymph glands and pancreatic glands are eventually involved, the secondary growths in the liver, however, being sparsely scattered. Generalized carcinomatosis of the peritoneum is uncommon, while the stomach is invaded in not more than 13% of cases.

Associated lesions of the heart and lungs are common. In at least half of the patients extensive atheroma, especially in the abdominal aorta, is found, whilst definite pathological changes in the kidneys are present in over 60%. The gall bladder is distended in over 50%. The onset of the disease as an average extends over four months. The symptoms most frequently complained of are loss of weight, upper abdominal pain which occasionally radiates to the back and its sometimes related to meals, deepening jaundice, constipation and vomiting.

The chief physical signs are emaciation, enlargement of the gall bladder, sometimes an upper abdominal tumour and very occasionally signs of abdominal pressure, such as ascites, prominent superficial veins.

The temperature throughout tends to be subnormal, the pulse being slightly increased.

The urine reflects the associated renal and cardiac changes. Sugar is very seldom present—3.3%.

The prognosis is hopeless, all patients dying.

The duration of the disease after admittance to hospital averages three and a half months.

A study of the disease as pictured by various English and American writers shows slight differences from the Australian type. The most constant features found by English observers, such as Mayo Robson and Cammidge, Herringham, appear to be: Loss of weight, jaundice, enlargement of the gall bladder and haemorrhages.

Robson and Cammidge say that pain is absent or unimportant. Herringham, on the other hand, found it a frequent symptom.

American observers especially lay stress on the following: Loss of weight, pain, jaundice, constipation, presence of a tumour, enlargement of gall bladder and pressure signs.

It will be seen that the Australian characteristics agree more closely with those of the American type, differing only from it in the presence of vomiting and enlargement of the liver. The main points of difference from the English type are the absence of haemorrhages and the frequency of pain. Of course all of these differences are relative only, for some cases are found which agree closely with the other types.

The details of my analysis are as follows:

ATIOLOGY.

Age.

The average for all patients was 60.4 years, the variations being between thirty and ninety. The average age in males was 61.2 years, with variations between thirty-five and ninety. The average age in females was 58.8 years, with variations between thirty and seventy-eight.

Sex.

Of the sixty-one patients, forty or 65.6% were males, twenty-one or 34.4% were females.

Birth Place.

The birth place of patients was as follows: Victoria 32, England 9, Scotland 5, Ireland 5, New South Wales 3, India 2, New Zealand 1, Roumania 1, South Africa 1, and Tasmania 1. In other words thirty-seven patients were Australians.

Marital Condition.

Of the forty males, twenty-four were married, ten were widowers, six were single. Of the females, three were married, twelve were widows, six were single. Hence the proportion of single to married patients was 1:4.08.

Occupation.

Occupation of the patients included labourers, lorry drivers, bootmakers, fishmongers, gripmen, traveller, jewellers, barman amongst the males and waitresses, charwoman amongst the females. Twenty-one patients were pensioners.

Previous Illnesses.

Gastro-Intestinal.

Of sixty-one patients, twenty, *id est* 32.8% gave a definite history of previous gastro-intestinal disturbance. Such disturbance included: (i.) Indigestion, extending over a long period, six patients; (ii.) jaundice, usually many years previously, five patients; (iii.) vague abdominal pain, sometimes related to food, six patients; (iv.) gastritis or enteritis, two patients; (v.) gall stone colic, one patient; (vi.) *diabetes mellitus*, one patient; (vii.) hydatid of liver, fifty years previously, one patient.

General.

Twenty-six patients, *id est* 42.6% gave an absolutely clear past history. Of the various antecedent diseases, the following were found: (i.) Pleurisy and

pneumonia, three patients; (ii.) rheumatic fever, two patients; (iii.) asthma, two patients; (iv.) typhoid fever, two patients; (v.) "always ailing," one patient.

Venereal.

Ten patients, *id est* 16.4% gave a definite history of previous venereal infection; five of these were syphilitic, *id est* 8.2%.

Habits.

Sixteen patients, *id est* 26.2% gave a history of moderate or excessive alcoholism. Most patients had lived a life of hard work.

Family History.

Three patients, *id est* 4.9% gave a family history of carcinoma. Thus two sisters and a brother of one patient had died of cancer of the bowel and stomach. The father of another patient had died of tumour of stomach. The sister of another patient had died of cancer of an unknown site.

One patient gave a history of the father and a brother dying of jaundice.

Two patients had tuberculosis in the family.

Six female patients gave a history of miscarriages.

PATHOLOGY

This portion of the communication is based mainly on the *post mortem* examinations and the findings at operations. In thirty-eight cases full reports were obtained.

The Pancreas.

Position of Tumour.

The frequency of site is shown in the following table:

| Position. | Number of Cases. | Percentages. |
|---------------------------------------|------------------|--------------|
| Head of pancreas | 32 | 52.5 |
| Generalized through gland | 11 | 18.0 |
| Body | 12 | 19.6 |
| Body and tail | 4 | 6.6 |
| Head and tail | 2 | 3.3 |

Character of Growth.

Practically all of the growths were described as hard and nodular. The size varied greatly. An occasional growth was soft or ulcerated rapidly.

Secondary Growth.

The liver, portal lymph glands and pancreatic glands were involved in all patients examined *post mortem*. The secondary deposits in the liver were usually sparsely scattered, occasionally only one or two being found.

On the other hand, the liver was thickly studded in a few instances.

In four cases, *id est* 6.5% there was generalized peritoneal sowing.

In one case only was there any external sign of secondary deposit, *videlicet* hard nodules beneath the abdominal wall.

Special Tendency on Part of Neoplasm.

Three patients, *id est* 4.9% showed a tendency to spontaneous haemorrhage.

In two instances definite ulcerative tendencies were present. In two instances there was ulceration into the duodenum.

The stomach was infiltrated in eight instances, *id est* 13.1%.

In two cases there was extensive spread along the glands surrounding the *inferior vena cava* and aorta, in one case this extended down to the bifurcation of the abdominal aorta.

Circulatory System.*The Heart.*

The hearts of ten among thirty-eight patients examined were described as enlarged, hypertrophied or dilated, *id est* 26.3%.

Fifteen hearts were described as "small and flabby," *id est* 39.5%.

Signs of previous valvular and pericardial disease were found in four instances, whilst in one instance was found a secondary nodule from the primary growth in the pancreas.

Blood Vessels.

In the blood vessels of nineteen patients out of the thirty-eight, *id est* 50%, there were found extensive atheromatous changes, especially with calcification. In many of these the abdominal aorta was especially involved.

The Pulmonary System.

The pulmonary system of twenty-six patients showed pathological changes, including emphysema, pleural adhesions, apical scarring and general fibrosis. In two instances secondary growths were present.

The Liver and Gall Bladder.

In five patients, *id est* 13.2%, definite signs of cirrhosis of the liver were found.

Secondary growths were present in practically all cases.

In nineteen patients, *id est* 50%, the gall bladder was definitely distended.

Kidneys.

In twenty-four patients, *id est* 63.2%, the kidneys showed definite pathological changes, including adherent capsule, diminution in size, toughness, thickened blood vessels, cysts and calcification. In only one patient was there a secondary nodule found.

SYMPTOMS.*Onset.*

The period of onset varied between eleven days and three years, the average being about four months. In a few instances the period was naturally indefinite.

Jaundice.

Of the sixty-one patients thirty-three, *id est* 54.1% had jaundice, the average duration before the patient came for treatment being seven weeks. In most instances the jaundice was deep and gradually increased.

Pain.

Forty-three patients, *id est* 70.5% complained of pain which was mostly epigastric in position, although in a few instances it was at the costal margin, right or left hypogastrium or flank and back.

The pain was described as being either dragging, burning, aching or colicky. Occasionally it radiated to the back. Sometimes it occurred immediately after food, half an hour after food or occasionally one to two hours after food. In several instances it occurred at night when the patient was in a recumbent position.

Vomiting.

Twenty-three patients, *id est* 37.7% gave a history of vomiting. In most of these vomiting was occasional only, in others it lasted constantly for three to five weeks. Usually the vomitus consisted of bile-stained food.

Constipation.

Twenty-five patients, *id est* 40.9% gave a definite history of constipation. The stools in these instances were pale. In one instance only was the stool noticed to be greasy and very light in weight, though bulky. In three instances the motions were tarry.

Loss of Weight.

Forty-three patients, *id est* 70.5% gave a definite history of loss of weight.

Anorexia.

Seventeen patients, *id est* 27.9% had anorexia. This appeared to be non-specific as regards the type of food.

Flatulence.

Fourteen patients, *id est* 22.9% gave a history of flatulence.

Diarrhoea.

Eight patients, *id est* 13.1% had diarrhoea for some time previously.

It will be seen that the symptoms most frequently found appear in order of frequency to be: (i.) Loss of weight; (ii.) pain, upper abdominal; (iii.) jaundice, spread over several weeks; (iv.) constipation and (v.) vomiting.

PHYSICAL EXAMINATION.

The following were the most outstanding signs: Jaundice, in 54.1% of instances; emaciation, very marked in 49.2%; enlarged liver which was definite in twenty-nine patients, *id est* 47.5%, was invariably an enlargement downwards. In a few instances the liver could be felt to be nodular.

Tumour was definitely present in the upper part of the abdomen of thirty-one patients, *id est* 50.8%. Of these tumours seven from their position and characters were probably enlarged gall bladders.

The features of the pancreatic tumours were: (i.) Dulness to percussion, (ii.) hardness and firmness on palpation, (iii.) well-defined outline, (iv.) tenderness, (v.) mobility on respiration, (vi.) situation in upper abdominal area, usually just above the umbilicus.

Abdominal Pressure Signs.

Ten patients, *id est* 16.4% showed free fluid in the abdomen. Five patients, *id est* 8.2% showed distended veins in the abdominal wall. Two patients, *id est* 3.3% showed oedema of the inferior extremities.

Circulatory System.

In six patients only, *id est* 9.9% were there signs of cardiac disease.

The maximum blood pressure obtained was 215, the minimum 60 millimetres of mercury. The blood pressure averaged 130.

Pulmonary System.

Twelve patients, *id est* 19.8% showed pulmonary signs, mostly of emphysema and fibrosis.

The Urine.

The specific gravity of the urine varied between 1010 and 1035. Albumin was present in eleven instances, *id est* 18%. Sugar was present in two instances, *id est* 3.3%. Bile was present in thirty-three instances, *id est* 54.1%. Diacetic acid and acetone were present in one instance only, *id est* 1.7%.

COURSE.

Thirteen patients were operated on and subsequently discharged as incurable. Their further course is not known.

All of the remaining forty-eight patients died.

The average total duration of the disease was three and a half months. The longest course was twelve months, the shortest four weeks, though probably the disease had been present for a much longer time in the latter case.

In forty-one patients, *id est* 68.9% the temperature was subnormal throughout the course of the illness.

In twelve patients, *id est* 19.8% the temperature was swinging.

The pulse varied between seventy and one hundred and forty, averaging ninety-six in the minute. Constipation was the rule during the period in hospital.

Special symptoms occurring in the period of observation included: (i.) Haematemesis, four instances; (ii.) paralysis of left vocal cord—cause not determined—one instance; (iii.) ascites, one instance.

NOTE ON SPECIAL INVESTIGATION OF SIX CASES.

The results of investigation of several of these patients are included in another communication already published. The special tests employed were:

- (i.) Loewi's adrenalin eye test;
- (ii.) Estimation of the urinary diastatic content;
- (iii.) The hydrochloric acid test meal (Apperly and Cameron);
- (iv.) Examination of the urine for sugar, diacetic acid and acetone, indican, bile, calcium oxalate crystals;
- (v.) Examination of the faeces microscopically for muscle fibres, especially with striations, connective tissue fragments, fat globules, fatty acid crystals and oxalates.

The results were as follows:

| Test. | Cases Examined. | Results. |
|-----------------------------------|-----------------|--|
| Loewi's test .. | 6 | Two positive |
| Urinary diastase test .. | 6 | Average ten units |
| Hydrochloric acid test meal | 3 | All gave curves typical of pancreatic insufficiency |
| Urine | 6 | Two specimens contained sugar, three albumin, four calcium oxalate |
| Faeces | 6 | All contained muscle fibres, fat, fatty acid crystals |

DISCUSSION.

The age incidence is usually stated as being at a slightly lower level than that found in this series. Thus, Robson and Cammidge say that pancreatic carcinomata occur usually after forty; Ewing places it at thirty to fifty; Opie between four and seventy; Bosanquet and Clegg say that many cases occur at about seventy.

Most of the patients investigated were Australian, showing that the disease is by no means uncommon in this country.

As far as the writer can find out, there have been no previous figures on the subject of marital condition. The preponderance of married subjects is probably accounted for by the age of the patients. Occupation included many varieties, the majority of patients having had to work hard through their lifetime.

The relationship of sex is very interesting. Miraillé, as quoted by Opie, found the relationship as follows: Males 65.1% and females 34.9%. These figures agree remarkably with those found in this series, namely: Males 65.6% and females 34.4%.

Seeing that cholelithiasis and its accompaniments occur much more frequently in females than in males, these figures may afford some evidence against the possible influence of the above condition on the incidence of carcinoma of the pancreas. Most writers record the presence of gastrointestinal symptoms prior to the onset of symptoms. These were found in about one-third of the patients analysed. It is interesting to record that one patient only had a history of previous gall stone colic.

The majority of patients seem to have an absolutely clear past history. Venereal disease and alcoholism apparently are infrequent factors. The three patients with a family history of carcinoma may or may not be suggestive.

The results as regards position of tumour may well be compared with those of other observers.

Robson and Cammidge found the following: Head of the pancreas, 62%; generalized through gland, 29%; tail of pancreas, 5.5%; body of pancreas, 3.5%.

Opie states that Segré found the primary growth in the head in 61.4% and that Miraillé found the primary growth in the head in 72.6%.

Bland-Sutton says that the head of the pancreas is affected six times more frequently than the tail.

It will be seen that the figures in this investigation give carcinoma of the head of the pancreas at a slightly lower percentage, 52.5%. The tail was affected in about the same proportion as given by Bland-Sutton.

The nature of the growths, the secondaries and special tendencies presented nothing out of the ordinary. As in most cases recorded scirrhouous carcinoma was most frequent.

Apparently it is fairly common to have associated pathological changes in other organs. Thus we find 65% of the hearts, 70% of the lungs and 63% of the kidneys examined showed degenerative changes. This does not altogether agree with the history of previous illnesses, it having been already pointed out that at least 42% of patients gave an absolutely clear history, whilst many with a record of some previous illness could not be classed as likely to develop definite pathological changes in these organs. The association of extensive atheromatous changes, especially with calcification, makes the writer wonder whether there may not be a condition which might be called chronic fat necrosis associated with some cases of pancreatic disease. On the other hand, the age of the patients is that at which such changes are most commonly found. Again, it is possible that these were examples of Mönckeberg's sclerosis, in which the lesion begins in the *tunica media* as a fatty degeneration followed by massive calcification.

The presence of a dilated gall bladder in about 50% of cases is rather a low figure when compared with other observers' findings. In regard to symptoms, attention may be drawn to:

- (i.) The frequency of epigastric pain. Garrod states that pain across the back is very important in the diagnosis of carcinoma of the pancreas, but this appears to have been infrequent in this series.
- (ii.) The definite history of loss of weight in 70% of the patients.
- (iii.) The presence of jaundice extending over several weeks.
- (iv.) The absence of any noticeable changes in the stools.

Enlargement of the liver appears to be a fairly definite sign, as also the presence of an abdominal tumour with certain well marked features. Pressure signs are apparently rare.

Changes in the urine very seldom occur and this agrees with the findings of most observers.

The course of the disease was well within twelve months with an average of three and a half months, although it is difficult to be sure of the latter estimate.

The special investigation of carcinoma of the pancreas affords much help in certain of the cases, although no one test by itself should be taken as diagnostic. It is interesting to note that the diastatic value of the urine is low and well

within the normal limits, whilst the adrenalin mydriasis test as a rule does not yield a reaction.

ACKNOWLEDGMENTS.

My best thanks are due to the Superintendent of the Melbourne Hospital, Dr. J. R. Williams, for permission to make use of the hospital records.

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Reviews.

THE LEGAL VIEW OF INSANITY.

No profession not even the church can rival the law in its essential conservatism. The very garments and ritual of our courts are coeval with the systems (or lack of systems) of ventilation typical of legal chambers and even of supreme courts. Dr. White comes as a breath of fresh air in a musty courtroom to put a convincing case for the modification of criminal procedure to keep pace with the progress of modern psychiatry.

The central idea of the book¹ is the problem of the expert witness concerning the mental state of defendants in criminal proceedings. In England quite recently a keen discussion took place over the whole question. A maladjustment appears to exist, the author contends, between modern advance in scientific knowledge and the slow conservative methods of a law that broadens down from precedent to precedent.

Dr. White is emphatic in denying the idea that the plea of insanity works as an effective method of dodging justice, yet he considers expert evidence too often disregarded and the position of expert witness a most unsatisfactory one. In attempting to suggest a remedy for this wrong situation, he considers that we must discuss thoroughly the whole background of crime, the genesis of the criminal and the attitude of society to him, the tendency to individualize the criminal.

The subconscious bias of ingrained prejudice, the absurdity of the hypothetical question which would separate the action from the actor, the nebulous character of responsibility, tests of insanity are all handled in an interesting and generally sound fashion.

Suggestions are made as to the betterment of the legal position and the relationship of the suggestions to criminal law, its nature and its theory of punishment, is outlined.

The author's discussion of this important medical problem is well worth reading by all practitioners as well as psychiatrists.

¹ "Insanity and the Criminal Law," by William A. White, M.D.; 1923. New York: The Macmillan Company; Sydney: Angus and Robertson, Limited; Crown 8vo., pp. ix. + 281. Price: 12s. 6d. net.

The Medical Journal of Australia

SATURDAY, APRIL 26, 1924.

A Chain of Laboratories.

THE Federal Convention of statesmen who framed the constitution of the Commonwealth of Australia, handed over to the Federal Government certain functions, bestowed on it certain rights and imposed on it certain duties. These were mainly concerned with matters which affected Australia as a whole, matters such as trade and customs, defence and postal facilities. The same statesmen saw that the enactment and administration of laws governing internal affairs and certain social and economic conditions were retained by the States. Among the departments handed over to the States was that of public health, an aspect of governmental activity to which scant attention is paid by politicians unless they are compelled by the force of public opinion to do so.

At its inception the Federal Government was given control of maritime hygiene and quarantine. This was done for the purpose of preventing the invasion of the continent by exotic disease. Power was also given to the Federal Government to take control in the event of the introduction of certain named dangerous diseases. In these circumstances it has been possible for the Federal Government to institute a Ministry of Health without the necessity of making any alteration in the constitution. In spite of the obvious limitations thus placed upon it the Commonwealth Department of Health has been extending its activities. It has devised various pieces of machinery the aim of which is to improve the health of the community. These movements are being inaugurated with the collaboration of the State Department of Health in some instances and without their collaboration but with their consent in others. As examples of these activities several undertakings may be mentioned. In the first place must be put the hookworm campaign. The Australian Hookworm Campaign was undertaken at the instigation of the International Health

Board of the Rockefeller Foundation. The arrangements were such that the International Health Board and the Federal Government with each of the several States shared the expense of the campaign. The help of the International Health Board is being gradually withdrawn and eventually in accordance with the original agreement the campaign will be carried on by the Federal Government and those of the several States. The industrial hygiene movement is another of the branches of activity of the Commonwealth Department of Health. The same collaboration with the International Health Board of the Rockefeller Foundation existed and has now been withdrawn. Much that is valuable in the way of statistical data has been and is being collected. It is hoped by this means to arrive at some accurate determination of the hazards connected with the various trades in the Commonwealth. The work in connexion with sanitary engineering undertaken by Colonel Longley and his staff is not less valuable. The tropical work of the Commonwealth Department of Health has been undertaken at Townsville and New Guinea and is bearing fruit.

One of the most important movements on the part of the Commonwealth Department of Health is the establishment of extra-metropolitan clinical laboratories on an experimental basis. The object of the scheme is the inauguration of a chain of laboratories in all parts of Australia in convenient centres. The laboratories will enable practitioners to obtain assistance in the diagnosis of disease. Bench space will be afforded to private practitioners who desire to undertake laboratory investigations and provision will be made for the collaboration of the trained staff and the local practitioners into matters of local importance. In addition there will be the research work of the staff undertaken independently of the local practitioners. If the Commonwealth Serum Laboratories in Melbourne be excluded, for they do not belong to this category at all, the first of these laboratories was that established at Bendigo. This has been an unqualified success. The practitioners at Bendigo speak of it in the highest terms. The members of the staff have been of the greatest assistance to the practitioners of that city; it has been of benefit to the State of

Victoria and of use to the local community. Valuable work has recently been carried out at this laboratory in connexion with diphtheria. Extensive investigations have been made consisting in the culturing of organisms and the examination of swabs, virulence testing and the isolation of pathological strains, followed by a trial of the Schick test and active immunization among school children. The laboratory at Rabaul, though in the tropics, is much on the same footing. The important work recently published by Dr. G. A. M. Heydon on the vectors of malaria shows what can be done. The latest of these institutions has been opened at Rockhampton. Two more laboratories are practically ready to be opened, one at Broome in Western Australia and the other at Port Darwin. The results of research in these outlying parts cannot fail to be of use.

It is the declared intention of the Ministry of Health to hand these laboratories over to the State departments at the end of a period of probation, if the experiment is found to be justified. Everyone must admit the great advantages that cannot fail to accrue to the medical profession and so to the people of Australia by this far-reaching activity. It is clear, however, that much more experience is required before it would be wise to hand these laboratories over to State control.

Current Comment.

ISO-AGGLUTININ GROUPS IN HUMAN BLOOD.

THE incompatibility of the blood of two persons depends chiefly on the power of the blood of one person to agglutinate the corpuscles of the blood of the other and on its power to dissolve the red blood corpuscles of the second person. The phenomenon of agglutination depends on the presence in the blood of an agglutinin which is specific and acts only in the presence of a corresponding agglutinogen. Landsteiner, Moss and Jansky were the more prominent workers in this field. They held that there were two kinds of agglutinins in human blood. These agglutinins and their corresponding agglutinogens were used as a basis for the division of human blood into four iso-agglutinin groups and it was assumed that the blood of every human being fell into one or other of these groups. The transfusion of blood from one individual to another was undertaken on these hypotheses and, although there occurred occasionally anomalies difficult of ex-

planation, it was not until Guthrie and Huck in 1923 published their important work that the existence of four groups and four groups only was seriously questioned. An account of their work was published in *THE MEDICAL JOURNAL OF AUSTRALIA* on July 21, 1923. By means of direct tests and absorption experiments they demonstrated the presence of a third iso-agglutinin; the group described as Group II. was shown to consist of two distinct types. They recognized the possibility that there might still be other agglutinins and agglutinogens in human blood, but they found nothing to indicate their existence. They concluded that there were at least three of each. They pointed out that there were sixty-four combinations of these mathematically possible, but held that twenty-seven were biologically possible. They found specimens of blood corresponding to eight of these.

Guthrie and Huck have now published the results of some further work on the two distinct types, described by them, which were formerly regarded as constituting Group II.¹ In their previous study they were led to assume that the formulae which would explain the behaviour of these two types of Group II. were *A*—*b* and *A*—*bc*. They concluded from their study that the type represented by the formula *A*—*b* was commoner than that represented by the formula *A*—*bc* and that their relative proportion within Group II. was about four to one. Throughout their work they refer to the blood of these two types respectively as *H.* and *D.J.* They make reference to the work of Hooker and Anderson who reported that they had been able to produce specific agglutinating sera for the four accepted groups of human erythrocytes by immunization of rabbits. Hooker and Anderson assumed the presence of an antigen common to the groups of human red cells and also that the specific iso-agglutinogens in the red cells might be capable of acting as hetero-agglutinogens in calling forth the production of specific hetero-agglutinins in rabbits. The results of their work indicated the correctness of these assumptions. They were, moreover, able in several instances to absorb from the immune serum the agglutinin produced by the antigen common to all four groups of cells and retain the antigen produced by the specific action of the particular type of cells used for immunization. Guthrie and Huck determined to apply this work of Hooker and Anderson to confirm or disprove their conclusions in regard to the agglutinogen content of their two types of Group II. blood. They tried by the immunization of rabbits to produce differential agglutinating sera for the two types of Group II. cells as represented by the blood of *H.* and *D.J.* They assumed that there is an antigen (*x*) common to all human erythrocytes and also that the specific iso-agglutinogens in the various groups are capable of acting as hetero-agglutinogens and so cause the production of specific hetero-agglutinins when injected into rabbits. Thus a rabbit injected with the cells of *D.J.* containing antigens *x*, *b* and *c* might be expected to develop the agglutinins *X*,

¹ *Bulletin of the Johns Hopkins Hospital*, January, 1924.

B and *C*. Absorption of this serum with the cells of D.J. should remove all of the agglutinin for those cells and for those of H. as well. Absorption with the cells of H., however, should remove the agglutinin for those cells without removing all of that for the cells of D.J. In a similar way an immune serum produced by the injection of red cells from H. should be entirely deprived of agglutinin for both types of cells when absorbed with the cells of either H. or D.J. It is not necessary to describe in detail the procedure adopted by Guthrie and Huck. It is sufficient to state that the results of their experiments which were carried out with adult rabbits, were in entire agreement with the theoretical considerations arising from adaptation of the work of Hooker and Anderson. They point out that there are several minor points which may detract from the value of the results and render them less striking. In the first place, prior to immunization the serum of each rabbit should have been tested for normal agglutinin against the cells of Group I., Group III. and Group IV. and absorbed with and tested against the cells of Group II. (H.), Group II. (D.J.) and representatives of the three other accepted groups. After immunization the serum of each rabbit should have been absorbed with and tested against cells from members of the other three accepted groups. They also state that it would have been advisable to have obtained a higher titre in the sera of the rabbits immunized against the cells of H. It is obvious, as Guthrie and Huck state, that they have not shown conclusively that any of the rabbits actually developed immune hetero-agglutinins which were specific for either type of Group II. cells as distinguished from the cells of other groups. They claim, however, that it was demonstrated that rabbits injected with the cells of D.J. contained in their sera an agglutinin which was specific for the cells of D.J. as distinguished from those of H. The sera of rabbits injected with cells of H. were incapable of effecting any such differentiation of the two types of Group II. cells. They point out that it was not proved that the agglutination of the cells of D.J. was due to immune rather than to normal hetero-agglutinin. They show that two rabbits injected with red cells containing agglutinogen *c* later on showed the presence of the corresponding agglutinin in their sera and that in no other rabbits was this agglutinin found. They state that this cannot be regarded as mere coincidence.

Guthrie and Huck state that they did not "contemplate an entire repetition of the work of Hooker and Anderson, but merely applied their method to a problem of limited scope. As a result of their own work, however, they feel convinced of the essential soundness both in theory and practice of Hooker and Anderson's observations.

Guthrie and Huck as a result of their findings claim confirmation of their original observations concerning the agglutinogen content in the erythrocytes of the two types of Group II. blood. They draw attention again to the practical application of their observations to the operation of blood transfusion. When transfusion is carried out on a

patient with blood from a donor apparently belonging to the same group, but whose cells contain an additional agglutinogen not present in those of the recipient, the recipient is likely to become immunized to the foreign agglutinogen and develop the corresponding agglutinin in his blood. After this had occurred an obvious incompatibility would be recognizable in matching the two samples of blood which would discredit the results of previous tests. If a second test were not made for incompatibility an unfortunate result might be expected in any subsequent transfusion given to that patient from a donor who had seemed entirely satisfactory at the first transfusion. They state further that the agglutinogen *c* in the blood D.J. described by them would not be detected by ordinary matching.

SODIUM BICARBONATE TETANY.

THE popularity of sodium bicarbonate therapy in paediatric practice has in recent years led to the recognition of numerous cases of tetany in children, presumably brought on by an excessive administration of the drug and even a few examples of adult tetany apparently referable to an excessive administration of sodium bicarbonate have been reported. Two views as to the cause of bicarbonate tetany have been advanced. According to Van Slyke tetany is observed when the hydrogen ion concentration of the blood has attained a pH of 77.8, whether this abnormal hydrogen ion concentration is caused by an uncompensated carbon dioxide deficit or by an uncompensated alkali excess. The other view is that alkalosis is a negligible factor and that the tetany following administration of large amounts of sodium bicarbonate is a demonstration of the poisonous effect of the sodium ion. W. Denis and L. von Meysenbug have restudied the question.¹ They determine the presence of tetany by an increased irritability of the motor and sensory nerves to electrical stimulation and not from the presence of convulsions alone. It was found that when sodium bicarbonate was introduced into dogs by intravenous injection there followed, when the dosage was sufficiently large, various twitching and jerking movements together with an increased irritability to electrical stimuli. Examination of the blood serum indicated a slight lowering of the calcium content and an increase in the sodium carbonate dioxide and pH. When sodium chloride or sodium sulphate was injected in place of sodium bicarbonate, "convulsions" similar to those noted above invariably appeared, but a determination of the electrical reactions showed that in these animals a normal or a decreased irritability prevailed. Examination of the blood serum showed an increased sodium content and a decrease in calcium, carbon dioxide and pH.

They claim that the results make it seem probable that the spasmophilic condition following excessive sodium bicarbonate injections is due to an abnormal NaHCO_3

ratio rather than to "sodium poisoning."

H_2CO_3

¹ *Journal of Biological Chemistry*, August, 1923.

Abstracts from Current Medical Literature.

SURGERY.

Malignant Papilloma of Renal Pelvis.

GOFFREY HADFIELD (*The British Journal of Surgery*, January, 1924) reports an instance of malignant papilloma of the renal pelvis associated with calculus. Malignant new growth of the renal pelvis is rare and of the fifty-four recorded instances only four were associated with calculus. The rarity of this association is remarkable because by analogy with the changes found in cholelithiasis the pathological changes accompanying pyelitis would seem to predispose strongly to malignant disease and the continued presence of a calculus in the renal pelvis may cause leucoplakia of its epithelium. The tumour reported by the author occurred in a woman, aged forty-eight years. Fourteen years before admission to hospital she had an attack of painless haematuria lasting several days. Twelve months before admission she had another attack of haematuria and complained of pain across the back. A fortnight before admission after receiving a slight trauma she had an attack of acute lumbar pain and vomiting followed by haematuria. On examination a large mass was palpable in the left hypochondrium. The patient was submitted to operation and the kidney was removed, the ureter being tied off just below its lower pole. Two and a half years later the patient was re-admitted with a large inoperable mass in the abdomen. She died soon after this and no autopsy was permitted. Examination of the kidney after removal revealed the presence of a tumour spherical in shape lying in the lower pole of the organ. It was approximately 5.5 centimetres in diameter and in its centre lay a spherical "mulberry" calculus. The tumour appeared to have grown around the calculus as a nucleus. It infiltrated the lower pole of the kidney. It bulged the pelvis from below, but had not infiltrated its wall except at the uretero-pelvic junction. The tumour appeared to have originated in the lowermost calices of a hydronephrotic kidney. The microscopic structure varied considerably. In one part the structure was that of a rapidly growing spheroidal-celled carcinoma, except that in some areas there were cell groups showing a moderate degree of keratinization. In another area the structure was that of a simple papilloma, except that there was considerable irregularity in and hyperchromatism of the cells. No renal metastases were found at any distance

from the tumour and there were no inflammatory changes in the walls of the pelvis. The author regards the tumour as being a transition stage between papillary epithelioma and squamous-celled carcinoma. He refers to the classification by Ewing of these tumours into two distinct types—a simple papillary epithelioma suggesting a relationship to a benign papilloma and a squamous-celled carcinoma.

Temporary Extra-Abdominal Intestinal Anastomosis.

D. P. D. WILKIE (*The British Journal of Surgery*, January, 1924) describes a method of short circuiting an intestinal obstruction which he claims will be of use as an emergency measure in suitable cases. A patient subsequent to an operation for acute appendicitis developed alarming symptoms of acute intestinal obstruction. A tube was inserted into a coil of small bowel. This proved, however, to be below the seat of obstruction and no good resulted. Under local anaesthesia a coil of jejunum was drained by means of the tube. Intestinal contents escaped freely and the patient was failing rapidly from the loss of his duodenal secretions. The author joined the tube from the jejunum by means of an indiarubber tube to the tube which he had inserted below the obstruction. The patient's general condition improved at once. The artificial loop was allowed to function for five days. Both tubes were then withdrawn, a dose of castor oil was administered to the patient, his bowels acted satisfactorily and he made an uninterrupted recovery.

The Origin and Nature of Hernia.

ARTHUR KEITH (*The British Journal of Surgery*, January, 1924) discusses the origin and nature of hernia. The author begins with the discussion of umbilical hernia. He approaches the subject from the developmental aspect. He shows that an umbilical hernia is normal in the larval dog-fish. As the larval stage is passed the hernia is gradually and spontaneously reduced and no scar remains; a hernia is produced and cured as a normal evolutionary event. The author compares this with the hernial umbilical sac of the human embryo. He refers to Frazer's description of the events leading to the reduction of this developmental hernia. Within a week of birth the last remnant of the umbilical hernial sac, the cord, has sloughed and a cicatrix has formed round its mouth. No pocket of peritoneum remains, but the site is left with this weakness. Within the umbilical scar three cords terminate. Though no peritoneal pocket is left, the time of onset of umbilical hernia runs exactly parallel to that of the inguinal canal. The age incidence of umbilical hernia cannot be explained by supposing that the condition is due to the presence of developmental peritoneal pockets as may be done in the case of inguinal hernia. When a hernia occurs in the

umbilical area, either owing to the weakness of the scar tissue in infancy or to the stretching of the *linea alba* by obesity or pregnancy in adult life, a peritoneal pocket has to be formed anew. The process observed in umbilical hernia makes the hernial descent of the testis a minor and more easily understood event. The extrusion of the testicle represents a comparatively late event in the history of evolutionary changes. The transit of the testicle to the scrotum is probably associated with its inability to withstand high degrees of intra-abdominal pressure. At the end of the fourth month of foetal life there is found a plica of peritoneum running from the epididymis and testis down to the future site of the internal abdominal ring. The plica contains bundles of non-striated muscular tissue. In the fifth month this muscular tissue undergoes cellular hypertrophy to form the gubernaculum, the gubernaculum assumes a bulbous form, its thicker end being at its testicular extremity. The peritoneum and the sub-peritoneal tissue take on a peculiar form of growth, evaginating the adjacent abdominal wall and apparently pushing its way towards the groin. All the layers of the belly wall in front of the gubernacular bud are soft, growing and being evaginated. This effect must be attributed to the influence of the gubernacular bud. The gubernacular bud makes its way into the abdominal wall, the testis follows. The process of transition is effected entirely by developmental or growth changes of exactly the same kind as bringing an abscess, a necrosed piece of bone or a foreign substance to the surface of the body. It is a process managed like the retraction of the intestinal loop from the umbilicus by properties resident in developing peritoneum and sub-peritoneal tissues. The descent of the testis is complete by the end of the eighth month of foetal life. The obliteration of the canal proceeds slowly, even in the third month after birth the upper part of the canal is imperfectly closed in from 30% to 40% of children. The author asks the question as to why removal of the peritoneal pocket will cure a hernia. He refers to the views put forward by Hamilton Russell that the presence of a hernial sac is the sole circumstance occasioning a hernia. He is of opinion that not only is operation the means of removal of the sac, it again renders competent the sphincteric mechanism of the inguinal canal. The presence of an opened inguinal ring only makes it easier for the bowel or omentum to force the inguinal shutter, but there is ample evidence that the inguinal shutter can be forced whether there is an open sac or not. The author maintains that man's groin has been weakened during his evolution. Herniae are caused not by continued degrees of high intra-abdominal pressure, but by minor and oft repeated impulses which wear down the defences and lead to the production of hernial sacs. In regard to femoral

hernia the author states that at no point in the development of man or beast does an evagination of the peritoneum take place at the femoral ring. He does not accept as proven the findings of Panton in regard to the occurrence of congenital hernial diverticula at the femoral ring. All femoral herniae are produced by repeated intra-abdominal forces. Most inguinal herniae of infancy take place into a sac of developmental origin; after childhood the sac and hernia are formed together.

Late Ulnar Nerve Palsy.

EDWIN M. MILLER (*Surgery, Gynecology and Obstetrics*, January, 1924) describes the classification, causes and modes of treatment for lesions of peripheral nerves, notably the ulnar nerve, associated with fractures. The lesions are classified as primary, secondary and late according to the time the signs of nerve involvement appear. The primary lesion appears at once at the time of the injury and may vary in severity from a simple contusion to a complete anatomical division. Secondary lesions come on gradually during the weeks of bone repair and are due to stretching of the nerve over growing callus or its inclusion in callus or scar tissue. Late paralysis makes its appearance many years after the fracture and it is this type that the author deals with in his account. From an analysis of the literature and the study of clinical histories he sets down the characteristic picture as follows: The primary cause in practically all cases is a fracture at the elbow in childhood, usually between the third and fifth year. In the majority the line of fracture begins laterally just below the epicondyle and passes obliquely downward and backward into the joint, causing a complete separation of the external condyle. The capitellum is displaced laterally and forward, is not reduced, non-union occurs and, growth of the humerus on its lateral side being interfered with, *cubitus valgus* develops. Deformity increasing, the olecranon process impinges against the medial condyle, the ulnar groove becomes but a shallow depression, hence the nerve itself is displaced from its bed. It is then subjected to repeated slight trauma causing in time partial or complete late ulnar palsy. In the majority of cases it is noticed between the twentieth and thirtieth year after the fracture occurs. Individual noted surgeons have been enthusiastic over each of the methods of treatment as are now detailed. Cuneiform osteotomy of the humerus to correct the deformity of the elbow, no operation on the nerve itself being necessary, is the method chosen with good results by Mouchet. Simple liberation of the nerve from its bed, often tried, is insufficient, as the aetiological factor is unchanged. Deepening the ulnar groove and lining it with an aponeurotic-fascial flap, theoretically correct, and used with good results by Broca, Guillemain and Mally, may fail from reformation of

bone and fresh contraction of scar tissue. Transplantation of the nerve to the flexor side of the elbow has best stood the test of time and is most used in America. The author quotes some of his records, presents a few plates and draws the conclusion that fractures of the external condyle in children should be operated on if the loose fragment cannot be accurately manipulated into position, because the growth upset as previously mentioned may produce a late paralysis. At the earliest sign of this the surgeon should transplant the ulnar nerve to the flexor aspect of the elbow.

Cholecystostomy versus Cholecystectomy.

W. J. MAYO (*Surgery, Gynecology and Obstetrics*, January, 1924) deals with the indications for and the merits of cholecystostomy and cholecystectomy. He says that if the gall bladder alone is affected, the patient is better off without it. The function of the organ is not very important, but cholecystostomy is not truly a conservative operation, in as much as it does not maintain what function there is. It is better occasionally, however, to perform cholecystostomy with the possibility of having to re-operate, than to risk losing the patient with the more radical primary operation. The whole aspect changes for the worse if the infection spreads to the common duct. The logical procedure in these circumstances is cholecystostomy rather than cholecystectomy. In the first instance secondary operation on the duct is comparatively easy, but in the absence of the gall bladder it is difficult and dangerous. In cases of obstruction below the cystic duct he advises drainage. Stones may form in the hepatic and common ducts and require repeated operation. Prolonged drainage to the surface and relief of tension by cholecystostomy often improves considerably the condition of patients with obstructive biliary cirrhosis (Adami). Walters found that a higher mortality followed cholecystectomy with removal of stones in the jaundiced patient than cholecystostomy. In the jaundiced patient the back pressure of the obstructed portal circulation causes prolonged and perhaps fatal haemorrhages.

Indications for Internal Splinting of the Spine.

PAUL B. MAGNUSON (*Surgery, Gynecology and Obstetrics*, January, 1924) discusses the indications, operative technique and merits of his modification for bone-grafting of the vertebrae by Albee's method. The ideal operation should immobilize the spine immediately, relieve the pain, do away with the necessity of external support and be strong enough to allow the patient to be up and about in from three to six weeks with only a support such as a Taylor spine brace applied. He affirms that this type of fixation of the spine should be done wherever chronic disabling pain and

increasing deformity exists as a result of tuberculosis of the spine, tuberculous caries of the bodies of the vertebrae, fracture compression of the bodies, fracture of the articular processes, forward slipping or relaxation of the fifth lumbar vertebra and chronic strain, when there is relaxation of the ligaments with malformation of the lumbo-sacral articulation and disabling backache. In describing his technique he states that a heavy bone graft from the tibia is much preferable to a light one because it may be fastened to the spinous processes in such a way that it will give immediate immobilization, immediate relief from pain and freedom from plaster casts. At the operation he makes a curved dorsal incision of sufficient length to expose thoroughly all the spinous processes to be included in the graft. The flap having been laid back, the edges of the wound are attached to towels. The fascia over the *erector spinae* muscles is split, exposing the processes, then with a periosteal elevator the muscles, periosteum and a thin lamina of spinous process is separated and turned to one side in one piece, thus having an uninterrupted blood supply. A raw surface of bone on each process is now ready for the application of the sawed surface of the graft to be taken from the anterior aspect of the tibia in the usual fashion. The length of the graft should include two spinous processes above and two below the injured or diseased vertebrae. The graft is placed between the split spinous processes and held in position by forceps while holes are drilled through the grafts and the middle of the process. Wherever it is possible an ivory screw is put through the graft and into the spine. The graft is otherwise fastened by means of heavy braided silk sutures passed through the hole in each structure and the sutures are tied above and below each spine, giving a very strong support. He finds braided silk stronger than kangaroo tendon and no more irritating to the tissues.

Scleroderma and Gangrene.

HARRY COHEN (*Annals of Surgery*, December, 1923) describes two instances of scleroderma with resulting gangrene of the fingers. The first patient was a Russian, aged twenty years, who for five years had had trouble with his right hand, this was followed by pain in the fingers of the left hand. His serum did not react to the Wassermann test, the pulsation of the arteries was vigorous. He manifested advanced general scleroderma the skin of his face being tight and drawn and he could only with difficulty open his mouth. Several amputations were necessary on the fingers of each hand owing to the tendency of the gangrene to spread. The second patient was a Russian woman. She too had general scleroderma, her face and body being severely affected. The tips of the fingers of both hands became gangrenous and required amputation.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Royal Alexandra Hospital for Children on April 10, 1924. The meeting took the form of clinical demonstrations in the wards.

Syphilitic Synovitis of the Knees.

DR. LINDSAY DEY showed a male patient, aged eleven years, who was suffering from synovitis of both knees. Inquiry into the family history had elicited the information that the mother had given birth to three other children. One had been still-born after a gestation period of seven months. A second had been still-born at full time and the third had lived for five weeks after birth at full time and had died of convulsions and asphyxia. The patient had suffered from an ulcerated mouth in infancy. No rashes had been present. Examination of the child revealed no sign of interstitial keratitis. No gross stigmata of syphilis were present. Scars were seen at the angle of the mouth. The cervical lymphatic glands were enlarged. Hutchinson's teeth were not present. Sight was defective. The synovitis in the knees was associated with general laxity of the ligaments. The condition was painless. The serum had reacted to the Wassermann test.

Pseudo-Hypertrophic Muscular Paralysis.

DR. M. J. PLOMLEY showed a male child, aged nine years, who had suffered from measles and whooping cough two years previously. About eighteen months before admission it had been noticed that the child was clumsy on his feet and frequently fell over. At first he had been able to get up quite well. Later on he had climbed up his own legs in the manner characteristic of children suffering from pseudo-hypertrophic muscular paralysis. At the time of demonstration he was unable to get up without some support. He was inclined to walk on his toes and he waddled a good deal. Examination at the time of demonstration showed that the child was definitely below the average standard of intelligence for his age. Kyphosis was noted when he sat up in bed. When he was standing up there was definite lordosis and protrusion of the abdomen. There was some hypertrophy of the muscles of the calf. The gluteal muscles were not hypertrophied. Definite wasting of the upper limbs and thighs was present. The child was unable to get up from the prone position by his own effort. The body was seen to "slip through the fingers" when an attempt was made to lift the patient by the shoulders. There was some winging of the scapulae. The hand grip was very impaired and all movements of the lower extremities were very weak. The pupils were equal and reacted to light and accommodation. The knee jerks were absent. There was a flexor response to the plantar reflex and the sensation was intact.

Encephalitis Lethargica.

DR. PLOMLEY'S second patient was a boy, aged eleven years, who had been admitted to hospital on March 15, 1924. Investigation into the family history had revealed the fact that the father suffered from tuberculosis. The patient had suffered from scarlet fever seven years previously. The patient had been well until six weeks before admission. He had complained of pains in the legs and had been peculiar both in manner and in speech. The mother had stated that he saw "things double" in the early stages of his illness. He had suffered occasionally from vomiting and headache and had been feverish. The bowels had been well opened and nothing unusual had been present in the motions. He had been treated as though suffering from typhoid fever for one month. Professor Mills had seen the patient in the Manly Hospital and had diagnosed the condition as *encephalitis lethargica*. Lumbar puncture had yielded slightly increased clear fluid. Nothing abnormal had been detected on pathological examination. On admission to the Royal Alexandra Hospital for Children on March 15, 1924, the child had

been very drowsy when undisturbed and had resented examination. He had answered questions slowly. His pupils had been equal and had reacted to light and accommodation. Diplopia had not been present. The child had been able to count the number of fingers correctly on every occasion. The knee jerks had been present. The response to the plantar reflex had been extensor in type. The superficial abdominal reflexes had been present. The extremities had been wasted. There had been a tendency towards spasticity. Rigidity of the neck muscles had been present; there had been no head retraction. Kernig's sign had not been present. The child had suffered from incontinence of urine and faeces. Ophthalmoscopic examination on March 20, 1924, had revealed normal discs and fundi. On March 26, 1924, the child had been more drowsy. He had continually moved his tongue and jaws as though in the act of eating. He had frequently torn pieces out of the sheets with his teeth. He had taken his nourishment well and had still had incontinence of urine and faeces. On April 7, 1924, he had been more lethargic, had not talked or answered any questions.

Sub-Phrenic Abscess.

DR. P. L. HIPSLEY showed a male patient, aged ten years, who had been admitted to hospital on January 30, 1924, with a history of having scratched the third finger of the right hand six weeks previously. This had suppurated and had been followed by cellulitis extending to the elbow. This had been treated. Three weeks prior to admission the child had developed fever with anorexia, constipation, profuse sweating and restlessness at night. The child had vomited and had complained of pain under the right costal margin. This pain had been increased by movement. On admission there had been no history of cough. The child had lost 12.6 kilograms (two stone) in weight in one month and had been very depressed. Examination on admission had revealed an emaciated child with a dusky colour and flushed cheeks. The tongue had been clean and moist, the abdomen had been slightly distended, but no rash had been present. The spleen and liver had not been palpable below the costal margin. It had been thought that the liver dulness was possibly increased in an upward direction. The movements of the chest had been less on the right side than on the left. There had been no pain on deep respiration or in movement. Auscultation had not revealed the presence of adventitious breath sounds. The throat had been clear. Glands had not been palpable in the axilla. The temperature had been 39.5° C. (103° F.), the pulse rate had been one hundred and forty-four and the respirations had numbered twenty-four in the minute. The leucocyte count had been 30,000 per cubic millimetre. The blood serum had not reacted to the Widal test. X-ray examination had revealed that the right side of the liver was raised, suggesting the presence of a sub-phrenic abscess. An exploratory needle had been inserted in the tenth intercostal space in the posterior axillary line and pus had been found. An incision had been made over the eleventh rib and pus had been evacuated. Staphylococci had been grown from this on culture.

Congenital Hypertrophy of the Pylorus.

DR. HIPSLEY also showed a male patient, aged six weeks, who had been admitted to hospital on September 5, 1914, and had been discharged from hospital on September 25 of the same year. The child's history had been one of continuous vomiting for four weeks. The stools had been dry and hard and a very small quantity of urine had been passed. Vomiting had usually occurred from two to three hours after taking food. DR. HIPSLEY had found an hypertrophic condition of the pyloric ring at operation. He had performed posterior gastro-enterostomy. This had been before the introduction of Rammstedt's operation.

Spondylitis.

DR. HIPSLEY'S third patient was a boy, aged nine years. He had been admitted to hospital on November 7, 1923. He had hurt his back while jumping a few weeks prior to admission and had kept his back stiff since that time. He had complained of agonizing paroxysms of pain coming

on at any time of the day or night. Fever had not been present and he had not complained of pain between the attacks. On examination it had been found that the patient lay rigidly on his back. He had found it very difficult to turn on to either side. The spine had been quite rigid from the third thoracic vertebra to the sacrum. Neither flexion nor lateral movement had been possible. Pain had been present on percussion over the twelfth thoracic and all the lumbar vertebrae. Referred pain had been present in the area of distribution of the lumbar plexus on the right side. The reflexes had been normal and the urine clear. No reaction had been obtained to the von Pirquet test and X-ray examination had failed to reveal an abnormality. On January 10, 1924, prominence of the twelfth thoracic vertebra had developed, it had been tender on percussion. A skiagram taken on this date had revealed the presence of bony ankylosis between the twelfth thoracic and first lumbar vertebrae and between the fourth and fifth lumbar vertebrae.

Infantile Paralysis.

DR. J. M. GILL showed a child, aged one year and five months, who had been admitted to hospital on March 19, 1924. The family history had contained nothing of interest. There had been no previous illnesses and the child had learned to walk at the age of twelve months. The child had been quite well until two days before admission. It had cried and had apparently suffered from pain in the back. It had not attempted to walk and the legs had become doubled up when put to the ground. The child had been feverish and irritable. There had been no history of trauma. On examination at the time of admission the child had been irritable and had resented examination. An attempt to make the child sit up had caused pain. The upper and lower canine and the pre-molar teeth had just been cut. The child was unable to sit up and had some rigidity of the muscles of the neck. The movements of the upper and lower extremities were satisfactory. The knee jerks had been present. On March 25, 1924, definite paresis had been present in the muscles of the neck and back. When not disturbed the child had been very good. On March 31, 1924, the patient could sit up when placed in a sitting position, but had made no attempt to sit up on her own account. On April 8, 1924, she had been able to sit up unaided.

Congenital Talipes.

MR. R. B. WADE showed a male child, aged four years, who was suffering from double talipes. The child had been operated on first in 1920 at the age of five months. Treatment had then been neglected for two years. Mr. Wade demonstrated treatment by means of frequent plaster correction.

Perthes's Disease.

MR. WADE also showed two children, aged respectively ten and nine years. The former had suffered from a limp for one year, the latter had complained of recurrent attacks of pain for two years. Examination in each instance had revealed limitation of abduction movements at the hip. X-ray examination had revealed the presence of Perthes's disease.

Ascites in Childhood.

MR. DAVIS showed a female child, aged two years and nine months, who had been admitted to hospital on December 11, 1923. Investigation of the family history had not revealed the presence of tuberculosis. The child had suffered from frequent attacks of gastro-enteritis since infancy. Swelling of the abdomen had been noticed for the first time by the parents on the day of admission. The child had complained of pain. The motions had been dark and offensive. The child had recently lost weight. There had been no urinary symptoms. Examination on admission had revealed the edge of the liver to be five centimetres (two inches) below the costal margin. A mass which was either the spleen or the left lobe of the liver, had been palpable on the left side. Free fluid had been present in the flanks. The other systems had been normal. On December 17, 1923, ophthalmoscopic examination had revealed normal fundi. The serum had not reacted to the

Wassermann test. No reaction had been obtained to the von Pirquet test. A blood count had revealed a slight decrease in the number of red blood cells. On December 23, 1923, the general condition had improved, distension had been less noticeable and no further enlargement of the liver had taken place. On January 1, 1924, the application of the von Pirquet test had failed to yield a reaction. A provocative injection of "Neo-kharsivan" had been given and the serum had not reacted to the Wassermann test. On January 12, 1924, the liver dulness had been slightly diminished and abdominal distension had been less. The child had been very irritable and examination by X-rays had failed to reveal an abnormality. On January 15, 1924, the child had been very irritable and head retraction had been present. Lumbar puncture had yielded forty cubic centimetres of fluid under increased pressure. On February 7, 1924, the abdominal distension had been increasing. On February 21, 1924, *paracentesis abdominis* had been carried out and nearly a litre and a half of fluid had been withdrawn. On February 29, 1924, the distension had been the same as before tapping. A differential leucocyte count had shown the eosinophile cells to number 15%. On March 22, 1924, a subcutaneous injection of tuberculin had failed to produce a reaction. A guinea pig had been inoculated with ascitic fluid and had yielded no evidence of tuberculosis. Eosinophile cells had numbered 5% of the total number of leucocytes. X-ray examination had failed to reveal any abnormality.

MR. DAVIS pointed out that the interest lay chiefly in the diagnosis. He said that there were several local causes of ascites in children. Carcinoma was one cause, but it was rarely seen. Cirrhosis of the liver was also seldom encountered. Still had described simple enlargement of the liver with ascites. Simple chronic peritonitis, sarcoma and pressure on the portal vein were also causes of the condition. Quincke had described a form of ascites in older girls appearing before menstruation was established and disappearing with the regular occurrence of this function. The clinical history of the patient would show that almost every common cause had been excluded. A very doubtful response to the complement deviation test for hydatid had been obtained during the previous week. Failing the production of a more satisfactory reaction to this test the most likely category in which the patient's condition should be placed was the simple enlargement of the liver accompanied by ascites described by Still. This condition ran a somewhat benign course and Still thought that at least some patients improved, the ascitic fluid undergoing absorption and a return to health taking place. Dr. Wade had told him of a similar case which he had seen some time previously. Dr. Wade had found nothing to account for the condition while performing the operation of omentopexy which had been attended by a successful result. The variable eosinophilia was of considerable interest. This feature had also been present in Dr. Wade's patient and had been found on one occasion to be above 50%.

Diabetes Treated by "Insulin."

DR. J. M. GILL AND DR. EVANS showed several diabetic patients who were being treated by "Insulin."

Pathological Specimens and X-Ray Films.

An interesting demonstration was made of pathological specimens and X-ray films.

Medical Societies.

THE BRISBANE HOSPITAL CLINICAL SOCIETY.

A MEETING OF THE BRISBANE HOSPITAL CLINICAL SOCIETY was held at the Brisbane General Hospital on April 10, 1924, DR. J. MOWBRAY THOMPSON, the PRESIDENT, in the chair.

Renal Calculi.

DR. HEDLEY BROWN showed a single woman, aged twenty-eight years, a school teacher, who complained of a

burning sensation and pain on the upper and outer aspect of the right thigh and over the right iliac crest. Over one and a half years previously she had been operated upon for *fistula in ano* and wondered if she were suffering from a recurrence. She was able to carry on her duties, she was free from pain during the day, but it got progressively worse at night time. There were no gross departures from normality in the various systems. The patient suffered from slight nocturnal frequency of micturition. Neither dyspepsia nor polyuria had been observed. The weight had remained unaltered. The patient had developed pain over the sacrum and this had extended to the left side. It had not radiated in any direction. On rectal examination a mass the size of a small orange could be palpated external to the bowel and one finger length from the anus. The patient had objected to a vaginal examination. Examination of the urine had shown its specific gravity to be 1005 and its reaction to be acid. It had contained no albumin, sugar, red blood cells, but had contained a few pus cells, a few phosphatic crystals and some motile bacilli. The patient had been referred to Dr. McDowall for X-ray examination with a provisional diagnosis of bone caries or ureteral calculus. The skogram had shown shadows of one large and five or six smaller calculi in the lower pole of the left kidney.

DR. V. McDOWALL showed the skigrams of the condition. In order to confirm the diagnosis he would like to take a skogram from the lateral aspect and also to have a cystoscopic examination carried out. In addition to the renal shadows there was a definite rounded shadow on the right side of the pelvis.

DR. EUSTACE RUSSELL said that the absence of haematuria was curious. The relation of pain on one side and shadows on the other was not against a diagnosis of renal calculi.

DR. GRAHAM SUTTON considered that the shadow was in the position of the kidney. Cystoscopy was indicated and it might also be necessary to use an opaque catheter and take a pyelogram.

DR. A. P. MURPHY asked for further information in regard to the tumour which had been palpated on rectal examination.

DR. D. A. CAMERON had seen the patient in consultation before the skigrams had been taken. All the signs had been on the right side. There had been tenderness on pressure just above Poupart's ligament and below McBurney's point. A distinct mass had been felt by the rectum, but no vaginal examination had been allowed. All the symptoms might be explained by an enlarged right ovary or by an ovarian cyst.

DR. BROWN in reply said that at first he had considered that the symptoms were due to a prolapsed ovarian cyst. Of course the mass might be a retroverted uterus. The patient had declined to undergo a vaginal operation, but was willing to submit to an exploratory laparotomy.

Pleurisy with Effusion—Malignant Disease.

DR. A. P. MURPHY showed a Lascar stoker who could not speak English and from whom no history could be obtained. The left side of the chest was dull on percussion and tactile fremitus was absent. Breath sounds were absent in the lower portions of the lungs and rhonchi and harsh vesicular breath sounds were audible at the apices. On the right side sibilant rhonchi were present. On aspiration three hundred and sixty cubic centimetres (twenty-one ounces) of blood-stained fluid had been removed. Dr. Murphy showed a skogram in which a dense shadow appeared with a small clear area at the apex. He was of the opinion that a new growth was present in the lung. The patient had been feverish for three days, but his temperature had returned to normal. The pleura would be tapped again. The Wassermann test had not been carried out, but it might be useful to do so in view of the occupation of the patient.

Fractured Skull.

DR. C. M. LILLEY on behalf of DR. A. G. ANDERSON showed a man who had been admitted to hospital in a deeply unconscious state after drinking a large quantity of rum. On recovery from the acute alcoholism he had been found to be paralysed on the right side and had not been able to speak, though he could understand when spoken to. A

skogram had revealed a fracture of the skull in the right temporal region. When this had been discovered about one month previously the question of trephining had been abandoned owing to a septic scalp wound over the involved area. The patient had gradually improved, speech had returned and he had a very fair degree of movement of the limbs on the right side.

DR. LILLEY asked for an expression of opinion as to whether the patient should be trephined. Blood clot was still present and he might develop Jacksonian fits at a later stage.

DR. NEVILLE SUTTON said that the relationship of Jacksonian epilepsy to trauma was not yet clear. It was advisable in dealing with any severe head injury to explore thoroughly the wound under anaesthesia. Any interference in this patient should have been undertaken at the beginning. If the skull had been trephined at first there would have been grave risk of septic meningitis. He would advise leaving the patient alone.

Asthma.

DR. EUSTACE RUSSELL showed an elderly female who had suffered from asthma for ten years. During the last attack she had had constant dyspnoea for six weeks. Food had been a factor in the production of the condition. Albuminuria had been present and she had been dieted for this. He asked whether the asthma was secondary to the renal condition or whether the albuminuria was due to some other cause. The patient had been given alternately morphine and atropine and adrenalin. Large doses of potassium iodide and Fowler's solution had also been used. The diet had consisted of dry bread, toast or gluten bread, lean meat grilled or roasted, fish, chicken, beans, spinach and onions and paws-paws. Under this diet considerable improvement had taken place and the result showed that apart from the drugs the food factor was of great importance.

Spastic Paralysis.

DR. RUSSELL also showed a patient whose condition he regarded as important from a medico-legal aspect. In July, 1923, the patient had been run over by a cart and his leg had been broken. He had been discharged from hospital in December. Shortly afterwards he had complained of pains and weakness in his legs and inability to walk. DR. RUSSELL considered that there might be pressure on the spinal cord, but radiographic examination had not confirmed this. Four years previously the patient had contracted syphilis and had been treated for two years. His blood serum did not react to the Wassermann test. DR. RUSSELL pointed out that the patient had signs of an upper neurone lesion, increased knee jerks, the Babinski type of plantar reflex and ankle clonus. The diagnosis lay between: (i.) Primary spastic paralysis, (ii.) secondary spastic paralysis and (iii.) Erb's syphilitic paralysis. Primary spastic paralysis was rare and more often seen in females. Though syphilis was admitted, the present condition was possibly due to a haemato-myelia caused by the injury.

DR. LILLEY had seen the patient shortly after he had left the hospital. He had considered that the injury had nothing to do with the spine. The cart had passed over the leg. There had been a spastic condition of the right leg, Babinski reflex and slight anaesthesia in the adductor region with wave girdle pains. He had sent the patient back to hospital with a provisional diagnosis of spinal tumour. He did not think the condition was due to haemorrhage.

DR. A. V. MEEHAN had seen the patient and had made a diagnosis excluding injury as the cause. The condition in his opinion was either syphilitic pachy-meningitis or simple spastic paralysis, probably the former. Against the latter was the fact that no fracture of the spinal column had occurred and no haemato-myelia which was an acute condition with girdle pains and partial paraplegia developing at once. He considered that the sensory symptoms which were appearing, were in favour of pachy-meningitis.

Richter's Hernia.

DR. E. S. MEYERS read the notes of a case of Richter's hernia. The patient, a female, had been admitted to hos-

pital with a slight rise in temperature and rigidity of the left lower quadrant of the abdomen. There had been a small swelling in the right femoral region which was not tender. Vaginal examination had revealed no abnormality. There had appeared to be no indication for immediate operation and the patient had been kept under observation. Six days later faecal vomiting had commenced. The abdomen had been opened in the middle line and the intestine on the left side had been found to be very swollen, while the intestine on the right side had been normal. A band had been traced running from the left side down to the mass in the femoral region. Working from above as well as from below the sac had been easily freed and the strangulated bowel released. The hernia had been a Richter's hernia and had comprised one-third of the circumference of the bowel. Immediate recovery of the colour and tone of the bowel had taken place and the abdomen had been closed. The case emphasized that the best method of attacking femoral hernia was both from the abdomen and from the femoral area.

Fractured Thigh.

Dr. Meyers also showed a male patient who had sustained a fracture of the thigh in January, 1923. There had been 6.25 centimetres (two and a half inches) shortening with overlapping of the fragments and displacements outwards. Hodgen's splint had first been applied and had been replaced by plaster in extreme flexion. As this had not reduced the fracture, a long Liston splint and then a Thomas's splint had been applied. The shortening had still remained. In February, 1923, the caliper method of Corlette with a Balkan frame and a weight of 13.5 kilograms (thirty pounds) had been employed. Both legs had become equal in length. A skiagram taken in April, 1923, had revealed soft callus and poor apposition and a back splint had been applied. In June a slough of the heel had appeared and there had been disturbance of sensation below the knee. A trophic sore had also developed under the great toe. X-ray examination had revealed bad apposition in an antero-posterior and good apposition in a lateral view with enormous callus formation. Thorough investigation of the nerve lesion had pointed to involvement of the great sciatic nerve. Accordingly in June, 1923, he had cut down and had found dense adhesions round both branches of the sciatic nerve. These had been freed and a fat fascia flap inserted. Sensation had rapidly improved and the foot could be moved. The trophic sore under the great toe had healed. In January, 1924, the heel had been skin grafted by Dr. McLean with very good result. A skiagram taken in February, 1924, had shown a large amount of callus and a position that was not good. He considered that the history of this patient showed the need of a portable X-ray apparatus and also that in similar cases when good results were not forthcoming, an open operation was preferable.

DR. MEEHAN congratulated Dr. Meyers on the way he had stuck to his patient to the bitter end. For ordinary cases of fracture Thomas's splint was best, provided a properly fitting one was applied. Corlette's method required the use of a portable X-ray apparatus. When signs of paralysis were present, there was always a definite band round the sciatic nerve, not the ordinary scar tissue seen in every fracture. After freeing the nerve the ideal method of embedding was to use muscle.

DR. J. B. MCLEAN said that the secret of skin grafting was to use a suitable lubricant and fluid for the grafts. He always used a mixture of 50% sterile water and 25% each of rectified spirits and glycerine.

Post-Graduate Work.

SPECIAL LECTURES IN MELBOURNE.

THE MELBOURNE PERMANENT COMMITTEE FOR POST-GRADUATE WORK has arranged a special course of lectures on renal diseases to be delivered at the Walter and Eliza Hall Institute of Research in Pathology and Medicine,

Melbourne Hospital, in July, 1924. The first lecture will be delivered on Tuesday, July 1, 1924, commencing at 8.30 punctually and the series will be continued weekly for seven weeks. The lecturers will be Dr. Charles Kelaway, the Director of the Walter and Eliza Hall Institute; Dr. W. W. S. Johnstone, Dr. Robert Fowler and Dr. A. V. M. Anderson. The fee for the course will be two guineas. Further details will be announced in due course.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A MEETING of the Senate of the University was held on April 7, 1924.

DR. CECIL PURSER was unanimously re-elected Vice-Chancellor for the ensuing year.

On the recommendation of the Faculty of Science it was decided to nominate Mr. P. C. Carter for the Science Research Scholarship offered by the Royal Commissioners of the Exhibition of 1851.

Mr. Carter graduated as Bachelor of Science in 1923 with First Class Honours in Chemistry and Second Class Honours in Organic Chemistry.

He proposes to carry on a further course of work on terpenes at the University of St. Andrews, Scotland.

Obituary.

CLAUDE LEOPOLD WOLFGANG HUNT.

It is with regret that we have to announce the death of Dr. Claude Leopold Wolfgang Hunt which occurred at his residence in Warwick, Queensland, on March 26, 1924.

Claude Leopold Wolfgang Hunt had been suffering for some considerable time and his death was not unexpected. He was the son of the late E. Mason Hunt, of Rose Bay, Sydney. He was born in Sydney and educated at the Sydney Grammar School. As an undergraduate at the University of Sydney he was popular with his fellow students as well as successful in his studies. He graduated as bachelor of medicine and master of surgery in 1891. After graduation he was appointed resident medical officer of the Toowoomba Hospital and he shortly afterwards went to Warwick, where he practised for thirty years.

Claude Leopold Wolfgang Hunt took an active part in the life of his town. He held the position of health officer to the town of Warwick, he was medical officer to the Department of Education and honorary medical officer to the Warwick Hospital. He was a foundation member of the Warwick Club and was its president. In his younger days he was a fine tennis player and was fond of yachting. Latterly his garden absorbed most of his spare time. He is survived by his wife and daughter. His genial personality will be much missed by his colleagues as well as by very many patients and friends.

THOMAS RICHARD MCKENNA.

It is with regret that we announce the death of Dr. Thomas Richard McKenna which occurred at Brisbane, Queensland, on April 8, 1924.

Medical Prizes.

THE JACKSONIAN PRIZE.

It is announced that the Jacksonian Prize for 1923 has been awarded to Mr. Harold Robert Dew, of Melbourne. The subject of Mr. Dew's essay was "The Pathology and Treatment of Malignant Diseases of the Testicle."

The Jacksonian Prize, instituted in 1800 by Samuel Jackson, is the oldest and most coveted prize awarded by the Royal College of Surgeons of England. Competition for it is limited to fellows and members not on the Council and it is stated in the regulations that "the number and importance of original facts will be considered principal points of excellence" in the dissertations. Among the recipients of the Jacksonian Prize are Cheyne, Bowlby, Treves, Bland-Sutton and Hutchinson.

Australian medical practitioners will be pleased and gratified that an Australian graduate has won such a high distinction and has shed lustre on the art and practice of surgery in Australia.

Proceedings of the Australian Medical Boards.

NEW SOUTH WALES.

THE undermentioned have been registered, under the provisions of the *Medical Act, 1912 and 1915*, as duly qualified medical practitioners:

DOYLE, ANDREW ALOYSIUS, L.R.C.S., 1884 (Irel.), L.K.Q.C.P., 1885 (Irel.), Leura.

WALLACE, HUGH GILMOUR, M.B., Bac. Surg., 1920 (Univ. Melbourne), Newcastle.

Change of Name.

HAMILTON, ELLICE ETTIE PEDEN, to ELLICE ETTIE PEDEN DART.

TRANSACTIONS OF CONGRESS.

THIS issue of THE MEDICAL JOURNAL OF AUSTRALIA does not contain a supplement. The publication of the Transactions of Congress will be continued in the issue of May 3, 1924.

Books Received.

DIFFICULTIES: AN ATTEMPT TO HELP, by Seymour Hicks; First Australian Edition; 1924. London: Duckworth and Company; Sydney: Angus and Robertson, Limited; Crown 8vo., pp. 272. Price: 4s. 6d. net.

INSULIN IN GENERAL PRACTICE: A CONCISE CLINICAL GUIDE FOR PRACTITIONERS, by A. Clarke Begg, O.B.E., M.D., Ch.B. (Edin.), M.B. (Lond.); 1924. London: William Heinemann (Medical Books) Limited; Post 8vo., pp. 130, with four diagrams. Price: 5s. net.

INTERNAL DERANGEMENTS OF THE KNEE-JOINT, by A. G. Timbrell Fisher, M.C., F.R.C.S. (Eng.); 1924. London: H. K. Lewis and Company, Limited; Demy 8vo., pp. 156, with 40 plates including 80 figures. Price: 12s. 6d. net.

LOVE IN CHILDREN AND ITS ABERRATIONS: A BOOK FOR PARENTS AND TEACHERS, by Oskar Pfister, Pastor in Zurich, Translated from the German by Eden and Cedar Paul; 1924. London: George Allen and Unwin, Limited; Demy 8vo., pp. 576. Price: 24s. net.

PRACTICAL ELECTROTHERAPEUTICS AND DIATHERMY, by G. Bettom Massey, M.D.; 1924. New York: The Macmillan Company; Demy 8vo., pp. 413, with 157 illustrations. Price: 35s. net.

TAYLOR'S SANITARY INSPECTOR'S HANDBOOK, Edited by John H. Clarke, Member Royal Sanitary Institute; Sixth Edition, Re-written; 1924. London: H. K. Lewis and Company, Limited; Crown 8vo., pp. 552, with 116 illustrations. Price: 12s. 6d. net.

THE ANATOMY AND PHYSIOLOGY OF THE MALE BODY, by Hubert E. J. Biss, M.A., M.D. (Cantab.), D.P.D.; Third Edition; 1924. London: Baillière, Tindall and Cox; Size 17 inches by 9 inches, pp. 27, with eight plates, by Georges M. Dupuy, M.D., showing 89 illustrations and explaining 876 different parts. Price: 6s. net.

Medical Appointments.

DR. W. D. RYAN (B.M.A.) has been appointed Government Medical Officer at Barcaldine, Queensland.

DR. L. G. MALE (B.M.A.) has been appointed District Medical Officer and Public Vaccinator at Southern Cross, Western Australia.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

| BRANCH. | APPOINTMENTS. |
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| NEW SOUTH WALES: Honorary Secretary, 30-34, Elizabeth Street, Sydney | Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmain United Friendly Society's Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phoenix Mutual Provident Society |
| VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne | All Institutes or Medical Dispensaries Australian Prudential Association Proprietary Limited Mutual National Provident Club National Provident Association |
| QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane | Brisbane United Friendly Society Institute Stannary Hills Hospital |
| SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide | Contract Practice Appointments at Remark Contract Practice Appointments in South Australia |
| WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth | All Contract Practice Appointments in Western Australia |
| NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington | Friendly Society Lodges, Wellington, New Zealand |

Diary for the Month.

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| MAY 2.—Queensland Branch, B.M.A.; Branch. |
| MAY 7.—Victorian Branch, B.M.A.; Branch. |
| MAY 8.—Brisbane Hospital for Sick Children: Clinical Meeting. |
| MAY 9.—Queensland Branch, B.M.A.; Council. |
| MAY 9.—South Australian Branch, B.M.A.; Council. |
| MAY 14.—Tasmanian Branch, B.M.A.; Branch. |
| MAY 14.—Melbourne Paediatric Society. |
| MAY 21.—Victorian Branch, B.M.A.; Council; Election of Representative on Representative Body. |
| MAY 21.—Western Australian Branch, B.M.A.; Branch. |
| MAY 23.—Queensland Branch, B.M.A.; Council. |
| MAY 29.—South Australian Branch, B.M.A.; Listerian Oration. |
| JUNE 4.—Victorian Branch, B.M.A.; Branch. |
| JUNE 6.—Queensland Branch, B.M.A.; Branch. |
| JUNE 11.—Melbourne Paediatric Society. |
| JUNE 11.—Tasmanian Branch, B.M.A.; Branch. |

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and book-sellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad per annum payable in advance.